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A randomized controlled trial of unguided internet cognitive behaviour therapy for perfectionism in adolescents: Impact on risk for eating disorders

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ABSTRACT

Objective: Perfectionism is a risk factor for the development and maintenance of eating disorders. The objective of this study was to examine the efficacy of unguided Internet cognitive behaviour therapy for perfectionism (ICBT-P) as a treatment and prevention for perfectionism and symptoms of eating disorders, anxiety, depression and self-esteem in female adolescents.

Method: Young women (N = 94, 14–19 years) who self-identified as having difficulties with perfectionism but did not have a clinical eating disorder diagnosis were recruited. Participants were randomly allocated into one of three groups: unguided ICBT-P, unguided ICBT for nonspecific stress management (ICBT-S), or waitlist control.

Results: All analyses were intent-to-treat. ICBT-P resulted in the most favorable outcomes at post-treatment and 3- and 6-months follow-up. ICBT-P was superior to control on all outcome measures at 3- and 6-months and superior to ICBT-S on all outcomes over most time points (ds = 0.13–0.94). Clinical significance analysis demonstrated that the treatment prevented symptom increases over 6-month follow-up, with ICBT-P superior to ICBT-S in prevention of clinical perfectionism and depressive symptoms, and ICBT-P superior to waitlist control in prevention of eating disorder symptoms. There was relatively high attrition, although there were no differences in attrition between the groups at 3- and 6-month follow-up and rates were commensurate with other Internet interventions.

Discussion: The findings support unguided ICBT-P as a useful target for preventing eating disorder and associated symptoms in female youth who self-identify as perfectionistic.

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1. Introduction

Perfectionism has been argued to be a transdiagnostic process (Egan, Wade, & Shafran, 2011), and in adults and adolescents is associated with eating disorders, anxiety and depression (e.g., Dry, Kane, & Rooney, 2015; Egan, Shafran, & Wade, 2011; Johnson et al., 2018; Mitchell, Newall, Broeren, & Hudson, 2013). Evaluations of cognitive behaviour therapy for perfectionism (CBT-P) in adult samples shows significant reductions not only in perfectionism but also in symptoms of anxiety and depression, both in face to face (Lloyd, Schmidt, Khondoker, & Tchanturia, 2015) and Internet formats (ICBT-P; Egan et al., 2014; Rozental et al., 2017). The impact of such interventions on risk for, and symptoms of, eating disorders is less certain given the smaller number of studies in this area (Lloyd et al., 2015).

The rationale for investigating the impact of perfectionism interventions on eating disorder risk and symptoms is strong. Clinical perfectionism, defined as self-worth based on striving to achieve high standards despite adverse consequences (Shafran, Cooper, & Fairburn, 2002), is postulated to be a maintaining factor across eating disorders (Fairburn, Cooper, & Shafran, 2003). Evidence from a meta-analysis indicates that both the commonly accepted domains of perfectionism, perfectionistic strivings (striving to achieve high personal standards) and perfectionistic concerns (concern over mistakes in achievement), show associations with eating disorder symptoms (Limburg, Watson,

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Hagger, & Egan, 2017). In adolescents, perfectionism predicts increased eating disorder risk (Wade, Wilksch, Paxton, Byrne, & Austin, 2015), and the onset of eating disorder symptoms (Kehayes, Smith, Sherry, Vidovic, & Saklofske, 2019; Tyrka, Waldron, Graber, & Brooks-Gunn, 2002).

Only three treatment studies examining the impact of CBT-P on eating disorder symptoms exist. The first, a randomized trial, showed CBT-P to produce substantial within-group decreases in disordered eating in women with bulimia nervosa which was not superior to the comparison interventions (Steele & Wade, 2008). The second, a case series examination, showed ICBT-P to substantially reduce symptoms of dysmorphic concern, body image disturbance, and selective attention towards appearance-based stimuli in people with high levels of dysmorphic concern (Johnson et al., 2019). The third study was a randomized controlled trial in an adult population unselected for eating disorder symptoms and found no reductions in disordered eating compared to a waitlist control condition (Egan et al., 2014).

Of the numerous prevention programs for eating disorders (Watson et al., 2016), only one study to date has examined the impact of CBT-P in adolescents. Wilksch, Durbridge, and Wade (2008) compared eight-session CBT-P to a media literacy program and control group in female adolescents. The CBT-P program significantly reduced dietary restraint in participants with elevated perfectionism compared to the media literacy program. Further, the adolescents at high risk of eating disorders experienced the greatest improvement at 3-month follow-up in CBT-P compared to media literacy or control.

In the context of this small body of intervention studies, no research has examined the use of ICBT-P in adolescents. Further, while there is a small, but growing, evidence base supporting the use of Internet programs to prevent eating disorder symptoms (Melioli et al., 2016), none have focused on targeting perfectionism in adolescents. This is an important window of opportunity given the peak onset of eating disorders is in adolescence (Wade et al., 2015). The aim of this study, therefore, was to evaluate the efficacy of ICBT-P as a prevention approach for eating disorders in adolescents given the benefits of scalability and dissemination of Internet delivered programs (Andersson, 2016).

The current study was a randomized controlled trial comparing ICBT-P, Internet CBT for nonspecific stress management (ICBT-S), which served as an active control, and waitlist control. The primary outcomes were eating disorder symptoms and clinical perfectionism, and secondary outcomes were depression, anxiety, and self-esteem. It was predicted that participants in the ICBT-P group would report significantly lower levels of clinical perfectionism, eating disorder, depression and anxiety symptoms, and higher self-esteem, compared to the ICBT-S group, which would have significantly better outcomes than the control group. In order to examine prevention effects, as a secondary aim, we examined true prevention effects versus treatment effects. The greatest proportion of participants in a prevention sample will be healthy at baseline and therefore theoretically it is important to understand whether prevention benefits participants by preventing an increase in risk (Watson et al., 2016). True prevention in prospective risk occurs when the control group demonstrates increased symptoms compared to the intervention group, which has an absence of an increase in symptoms over time (Gillham, Shatté, & Freres, 2000). A "true" prevention effect was hypothesized, where a greater proportion of participants would experience deterioration in the ICBT-S and waitlist control groups than in ICBT-P.

2. Method

2.1. Participants

Female participants (N = 94, mean age 16.2 years, SD = 1.8) were recruited to participate in the study (see Fig. 1 for participant flow), through advertisements on radio stations, schools, mental health services listed on the Internet, and paid advertisement on the social media website, Facebook. The advertisements stated we were seeking young females who self-identified as having difficulties with perfectionism through the following questions; "*Do you set extremely high standards for yourself? Do you chase these standards even if it leads to bad effects e.g., stress, low moods, anxiety criticizing yourself? Do you feel worthless if you think you did not reach your goals?*". The inclusion criteria were: (a) female; (b) aged 14–19 years old; (c) regular Internet access; (d) answering "yes" to the following question: "Can speak and read English?"; (e) access to a General Practitioner who would monitor their physical health; and (f) if applicable, participants on antidepressant medications had to be on a stable dose for at least a month prior to the study and be willing to remain on the same dose during the study. Exclusion criteria were: (a) currently undergoing psychotherapy; (b) current diagnosis of an eating disorder (scoring ≥ 2 on the SCOFF; Hill, Reid, Morgan, & Lacey, 2010); or (c) suicidality as assessed by the MINI-KID B1 module (Sheehan et al., 2010).

2.2. Design

Participants were asked to complete the pre-treatment assessment on the Internet, after which they were randomly assigned to either ICBT-P (n = 36, 38%), ICBT-S (n = 34, 36%), or waitlist control (n = 24, 26%). Measures were completed at pre-treatment, post-treatment (or four weeks from pre-treatment for the waitlist control group), and 3- and 6-months after post-treatment assessment. Control participants were offered ICBT-P at 6-month follow-up.

2.3. Measures

2.3.1. Clinical Perfectionism Questionnaire (CPQ)

The CPQ (Fairburn et al., 2003) is a 12-item self-report measure of clinical perfectionism with acceptable internal consistency and validity (Egan et al., 2016). A confirmatory factor analysis confirmed a two-factor model with CPQ Factor 1 representing Perfectionistic Strivings (items 1, 3, 6, 9, 10 and 11), and CPQ Factor 2 representing Perfectionistic Concerns (items 4, 5, 7 and 12). The internal consistencies of CPQ Factor 1 (Perfectionistic Strivings) and CPQ Factor 2 (Perfectionistic Concerns) were α = 0.68 and α = 0.75 respectively.

2.3.2. Eating disorder examination questionnaire (EDE-Q; Fairburn & Beglin, 1994)

The EDE-Q is a widely used and validated measure of eating disorder symptoms over the past 28 days divided into four subscales; restraint, eating concerns, shape concerns and weight concerns, which form a global score of overall eating psychopathology. All items are measured using a seven-point Likert scale. The EDE-Q has good reliability and validity (Fairburn & Beglin, 1994), including with adolescents (Binford, Le Grange, & Jellar, 2005). The internal consistency of the global EDE-Q in this sample was α = 0.96.

2.3.3. Revised Child Anxiety and Depression Scales (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000)

The self-report Anxiety and Major Depressive Disorder subscales T-scores were used (47-items). The measure has good reliability and validity (Chorpita et al., 2000) and in this sample the Cronbach's alphas for the depression and anxiety subscales were 0.88 and 0.94 respectively.

2.3.4. Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965)

The RSES is a 10-item self-report measure, with higher scores indicating higher self-esteem. The RSES has good reliability and validity with female adolescents (Rosenberg, 1965). The internal consistency in this sample was α = 0.87.

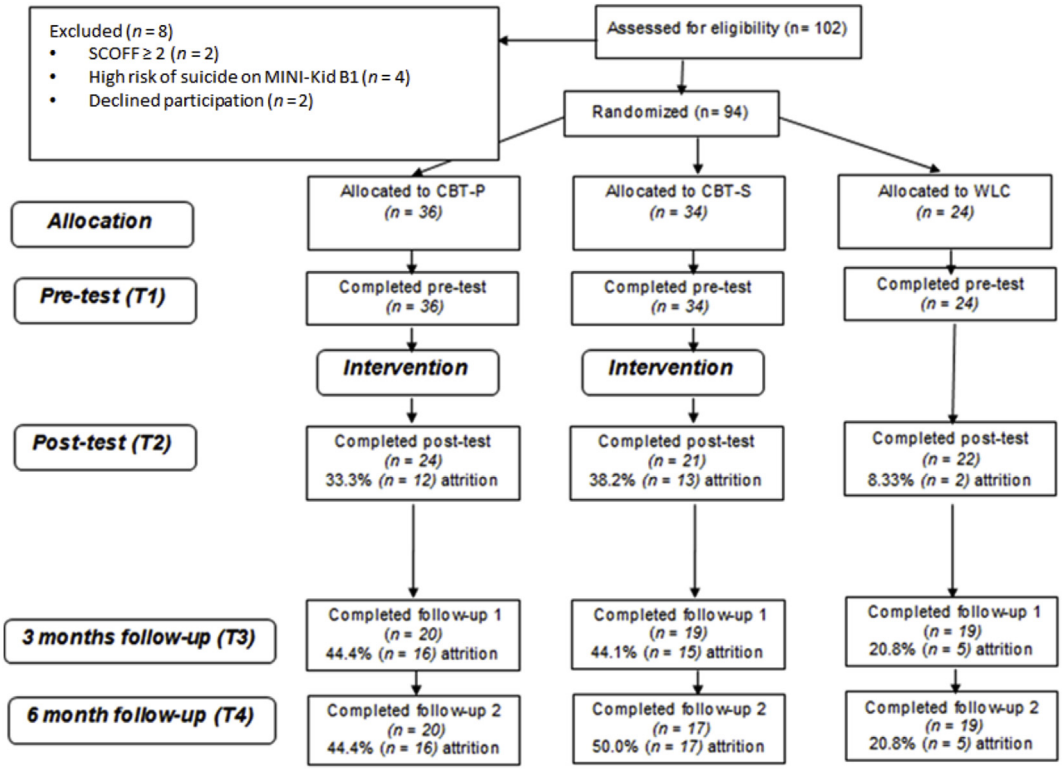

Fig. 1. CONSORT diagram of participants' progress through the phases of the RCT.

2.3.5. Credibility/Expectancy Questionnaire (CEQ; Devilly & Borkovec, 2000)

The 6-item CEQ was administered at pre-treatment and higher scores indicate greater credibility and expectancy of the treatment. Participants indicate on a 9-point Likert scale what they think or feel about the interventions. The CEQ has good internal consistency (Devilly & Borkovec, 2000). In the current study internal consistencies for the credibility and expectancy subscales were $\alpha = 0.81$ and $\alpha = 0.84$ respectively.

2.3.6. Adherence to treatment

Adherence was measured at the end of each session using four questions (e.g., "How much of the module did you do?") derived from a compliance measure in a self-help book for bulimia nervosa (Thiels, Schmidt, Treasure, Garthe, & Troop, 1998). Participants self-rated their module completion as 0%, 25%, 50%, 75% or 100%, and adherence was then grouped in to 0% completed, partially completed or 100% completion.

2.4. Procedure

Approval was obtained from the Human Research Ethics Committee at Curtin University (HR187/2013) and the trial was registered on the Australian New Zealand Clinical Trials Registry, ACTRN: 12615000128594. Participants were directed to the study website where they read an information sheet and completed a consent form. Participants under 18 years asked parents/caregivers to read the information sheet and complete a consent form and then screened on the telephone for eating disorders and suicidality.

The random allocation sequence list was generated by a clinical psychologist trainee at Curtin University, who was independent of the study, using the Random Allocation Software (Saghaei, 2004). The randomization sequence was a fixed block randomization schedule with blocks of six individuals for each group. The allocation sequence was concealed from the researchers by the trainee who contacted the participants who completed pre-test assessments via email and provided them with the group they were randomly assigned to, as well as the method to access the password-protected interventions.

Participants in the ICBT-P and ICBT-S groups were requested to complete their program over four weeks, averaging two sessions per week. Weekly generic emails and text messages were sent to remind participants (and parents of participants under 18) to complete sessions. If participants were not responsive, phone calls were made to encourage continuation. If participants were under 18 years, parents in the ICBT-P ($n = 25$, 69%) and ICBT-S ($n = 26$, 76%) groups received a parent newsletter via email to support the participant to apply the skills.

Participants completed measures using a secure web-hosting platform (Qualtrics, 2015). To encourage completion of post-treatment and follow-up questionnaires, participants received a feedback report that compared their clinical perfectionism at pre-test with the respective time points. Participants in the waitlist control group were sent a generic email and text explaining the time involvement for participation (20 minutes), the purpose of the control and a text message to thank them for their time after completion.

2.5. Interventions

The 8-session interventions (Table 1) were unguided as therapist contact only involved generic reminders. The ICBT-P program was based on a CBT self-help book for perfectionism (Shafran, Egan, & Wade, 2010) and the ICBT-S program was based on a CBT self-help book for stress (Brosan & Todd, 2009). ICBT-P involves learning how to develop an individualized formulation of the cognitive and behavioural processes that maintain perfectionism, to guide a range of techniques including behavioural experiments, surveys and other methods to challenge unhelpful thinking and behaviours related to perfectionism. The treatment also involves improving self-compassion through decreasing self-critical evaluation, and broadening self-worth, for example learning how to evaluate self-esteem in broad ways such as enjoying

Table 1
Content for each internet session.

Session	Topic
Internet Cognitive Behaviour Therapy for Perfectionism	
1	Defining perfectionism and identifying maintaining factors
2	Individualized formulation of perfectionism
3	Enhancing motivation to change perfectionism
4	Psychoeducation, self-monitoring and surveys
5	Behavioural experiments, challenging dichotomous thinking
6	Challenging unhelpful thinking styles
7	Procrastination, time management, pleasant events
8	Self-criticism versus self-compassion, self-evaluation and relapse prevention
Internet Cognitive Behaviour Therapy for Nonspecific Stress Management	
1	Defining stress and its effects on physical health
2	Recognizing symptoms of stress, the role of thinking in stress
3	Different coping styles in response to stress
4	Individualized formulation of stress, challenging stressful automatic thoughts
5	Identifying and challenging stressful behaviours and stressful relationships
6	Time management
7	Procrastination, worry and how to challenge them
8	Self-care, relaxation techniques and relapse prevention

learning rather than dependent on grades and being a good friend, rather than how many 'likes' they received on a social media post.

The Internet treatments were developed by Shu, Egan and Watson, and were interactive and included text and graphics (e.g., illustrations, charts, photographs, videos). There was overlap between the programs on two topics: procrastination and time management. However, in ICBT-P participants were encouraged to monitor procrastination in the context of their perfectionism. Similarly, time management was addressed in both interventions, but in ICBT-P, the emphasis was on balancing achievement and pleasure, and decreasing time spent on achievement-oriented activities. In ICBT-S, the emphasis was on prioritizing tasks by determining their importance and making a list to plan time.

2.6. Statistical analyses

An a priori power analysis was conducted based on a previous study (Riley, Lee, Cooper, Fairburn, & Shafran, 2007). To achieve 80% power, at an alpha level of 0.05, with three groups, the ability to detect large effect sizes ($f > 0.4$), (G*Power 3.1; Faul, Erdfelder, Lang, & Buchner, 2009), and estimated attrition rate of 50% (Andersson, 2016), the total sample needed would be 128.

All analyses were intent-to-treat. To investigate the efficacy of treatment, generalized linear mixed models (GLMM) were performed in SPSS (Version 22) which included one nominal random effect (participant), one nominal fixed effect (group: ICBT-P, ICBT-S, control), pre-treatment score as a covariate, one ordinal fixed effect (post-treatment, 3-month follow-up, 6-month follow-up), and one 2-way interaction (Group × Time). GLMM was used to examine Group and Time main effects, and Group × Time interactions. GLMM uses all existing data to model parameter estimates through full information maximum likelihood (FIML) estimation. Between-group post-hoc significance tests were conducted, and effect size estimates were calculated from GLMM marginal estimates using Cohen's *d* formula and hence were pre-test adjusted (Cohen, 1988).

To investigate prevention effects, we examined clinical significance and participants were classified into recovered, reliably improved, no change, and deteriorated (Jacobson & Truax, 1991). The *z*-score test for two population proportions was used to see whether groups differed significantly in prevention and treatment effects (Shochet et al., 2001; Stice, Marti, & Durant, 2011; Wilksch et al., 2008). Reliable Change Index (RCI) scores were calculated (Supplementary Table 1) using the Reliable Change Generator (ClinTools, 2008). Clinical significance cut-offs were as follows (see ***Supplementary Text***): 20.0 and 14.7 respectively for CPQ Perfectionistic Strivings and Perfectionistic Concerns, ≥ 2.30 on the global EDE-Q score (Mond, Hay, Rodgers, Owen, & Beumont, 2004), ≥70 for the RCADS (Chorpita, 2000), and ≤15 for the RSES (Rosenberg, 1965).

3. Results

3.1. Participant retention

Data were missing at random, as Little's missing completely at random (MCAR) test was non-significant, $\chi^2(54) = 67.1$, $p = 0.11$. A Pearson's chi-square test of contingencies was used to evaluate whether group type was related to participant attrition at each time point (see Fig. 1 for further details). At post-intervention, attrition was significantly higher in ICBT-P (33%) and ICBT-S (38%) compared to control (8%), $\chi^2(2) = 6.75$, $p = 0.03$. There was no significant difference in attrition at 3-month follow-up between ICBT-P (44%), ICBT-S (44%) or control (20%), or 6-month follow-up (ICBT-P 44%; ICBT-S 50%; control 20%), $\chi^2(2) = 4.16$, $p = 0.12$, $\chi^2(2) = 5.36$, $p = 0.07$.

3.2. Baseline demographic and clinical characteristics

It can be seen in Table 2 that, on average, participants were not in the clinical range on symptoms of eating disorders, anxiety or depression. Baseline demographic characteristics were equivalent across groups, on age, self-reported body mass index (BMI), and treatment credibility/expectancy (all *ps* ≥ .21). Groups were comparable on

Table 2
Baseline demographic and clinical characteristics.

Variables	Baseline α	ICBT-P	ICBT-S	Control	*p* value
		M (*SD*)	*M* (*SD*)	*M* (*SD*)	
Age	–	16.28 (1.85)	15.82 (1.73)	16.67 (1.83)	0.21
Body mass index	–	21.98 (3.12)	21.79 (3.67)	21.94 (3.52)	0.97
CEQ Treatment Credibility	.81	19.72 (4.53)	18.58 (4.48)	19.83 (3.70)	0.45
CEQ Treatment Expectancy	.84	14.99 (4.33)	14.28 (4.00)	15.24 (4.33)	0.67
CPQ Perfectionistic Strivings	.68	15.61 (3.37)	13.74 (3.25)	15.27 (3.20)	0.05
CPQ Perfectionistic Concerns	.85	10.56 (2.29)	9.62 (2.23)	10.46 (2.64)	0.21
EDE-Q Eating disorder symptoms	.96	1.90 (1.42)	1.67 (1.41)	1.56 (1.37)	0.61
RCADS Depression	.88	60.44 (13.94)	61.69 (14.97)	51.67 (13.91)	0.02*
RCADS Anxiety	.94	61.30 (13.55)	63.88 (14.99)	56.41 (12.41)	0.13
RSES Self-esteem	.87	14.25 (4.10)	14.62 (5.52)	15.87 (4.94)	0.43

Note: ICBT-P = Internet cognitive behaviour therapy for perfectionism; ICBT-S = Internet cognitive behaviour therapy for nonspecific stress management; Control = waitlist control; CEQ = Credibility/Expectancy Questionnaire; CPQ = Clinical Perfectionism Questionnaire; EDE-Q = Eating Disorder Examination-Questionnaire; RCADS = Revised Child Anxiety and Depression Scales; RSES = Rosenberg Self-Esteem Scale. *$p < 0.05$.

Table 3
Self-reported adherence to completing the CBT programs.

Session	Internet cognitive behaviour therapy for perfectionism				Internet cognitive behaviour therapy for nonspecific stress management			
	Completed all *n* (%)	Completed part *n* (%)	Did not complete *n* (%)	Missing data *n* (%)	Completed all *n* (%)	Completed part *n* (%)	Did not complete *n* (%)	Missing data *n* (%)
1	30 (83.3)	3 (8.3)	0 (0)	3 (8.3)	25 (73.5)	1 (2.9)	0 (0)	8 (23.5)
2	24 (66.7)	6 (16.7)	0 (0)	6 (16.7)	25 (73.5)	1 (2.9)	0 (0)	8 (23.5)
3	28 (77.8)	3 (8.3)	0 (0)	5 (13.9)	21 (61.8)	2 (5.9)	0 (0)	11 (32.4)
4	24 (66.7)	6 (16.7)	0 (0)	6 (16.7)	14 (41.2)	8 (23.5)	0 (0)	12 (64.7)
5	22 (61.1)	7 (19.4)	0 (0)	7 (19.4)	23 (67.6)	0 (0)	0 (0)	11 (32.4)
6	19 (52.8)	5 (13.9)	0 (0)	12 (33.3)	17 (50.0)	4 (11.8)	0 (0)	13 (38.2)
7	17 (47.2)	8 (22.2)	0 (0)	11 (30.6)	17 (50.0)	3 (8.8)	0 (0)	14 (41.2)
8	20 (55.6)	3 (8.3)	1 (2.8)	12 (33.3)	19 (55.9)	2 (5.9)	0 (0)	13 (38.2)

clinical variables (all $ps \geq .05$), except for RCADS Major Depression Disorder *T*-score, $F(2, 91) = 3.90$, $p = 0.02$. Tukey's honestly significant difference (HSD) post-hoc test revealed that at pre-treatment, the control group had significantly lower depression scores than ICBT-S ($p = 0.03$), but there were no significant differences between ICBT-P and ICBT-S ($p = 0.93$), and ICBT-P and control ($p = 0.06$).

3.3. Treatment adherence

As seen in Table 3, there were diminishing numbers of participants in each intervention at each session. On average across both ICBT-P and ICBT-S, 78% of participants completed all of session 1, but by session 4 approximately half of the participants (54%) completed the entire session and the completion rate was stable from session 4 through to session 8 (55%).

3.4. Analysis of intervention effects

The non-adjusted means and standard deviations of outcomes are reported in Table 4. The pre-treatment-adjusted outcomes for each group at each time point are shown in Fig. 2, which also reports the omnibus results of the GLMM analyses. The results of post-hoc tests can be seen in Fig. 3 and Supplementary Table 2. Overall the results supported ICBT-P as the most efficacious group (see Fig. 3 for significant of between-group post-hoc tests); these results are discussed in detail below.

3.4.1. Clinical perfectionism

The Group and Time effects on each perfectionism measure were significant; the interaction was not. Post-hoc contrasts showed that at post-treatment ICBT-P ($d = 0.75$) and ICBT-S ($d = 0.59$) had significantly lower Perfectionism Strivings than control. At post-treatment, ICBT-P had significantly lower Perfectionistic Concerns than ICBT-S ($d = 0.56$) and control ($d = 0.69$). At 3 months, ICBT-P had significantly lower Perfectionistic Strivings and Perfectionistic Concerns than ICBT-S (PS: $d = 0.52$; PC: $d = 0.54$), and control (PS: $d = 0.57$; PC: $d = 0.81$). At 6 months, ICBT-P had significantly lower Perfectionistic Strivings ($d = 0.55$) and Perfectionistic Concerns ($d = 0.84$) than control and lower Perfectionistic Concerns than ICBT-S ($d = 0.63$).

3.4.2. Eating disorder symptoms

The Group main effect was significant, the Time main effect and interaction were not. Post-hoc contrasts showed no significant between-group differences at post-treatment but at 3 months, ICBT-P had significantly lower symptoms than both ICBT-S ($d = 0.60$) and control ($d = 1.13$), as well as at 6 months; $d = 0.28$ and $d = 0.85$ respectively. The effect size differences between ICBT-P and the other conditions were small-to-large (i.e., $ds < 0.2$) across all time points.

3.4.3. Depressive symptoms

There were significant Group and Time effects; there was no significant interaction. Post-hoc contrasts showed that at post-treatment, ICBT-P had lower depression symptoms compared to control ($d = 0.58$). At 3 months, ICBT-P had significantly lower depression symptoms than control ($d = 0.56$). At 6 months, ICBT-P had lower depression symptoms than ICBT-S ($d = 0.49$) and control ($d = 0.63$). At each time point, the effect size estimates showed small effect sizes favoring ICBT-P over ICBT-S and medium effect sizes favoring ICBT-P over control.

3.4.4. Anxiety symptoms

There were significant Group and Time effects and a non-significant interaction. At post-treatment, ICBT-P had lower anxiety symptoms compared with ICBT-S ($d = 0.67$) and control ($d = 0.79$). At 3 months, ICBT-P had lower anxiety symptoms compared with ICBT-S ($d = 0.56$) and control ($d = 0.68$). At 6 months, ICBT-P had lower anxiety symptoms compared with control ($d = 0.69$). All effect sizes comparing ICBT-P to the other groups on anxiety were medium in magnitude.

3.4.5. Self-esteem

A significant interaction was found for self-esteem, with significant between-group differences emerging at 3- and 6-months, where ICBT-P was superior to ICBT-S ($d = 0.67$; $d = 0.94$) and control ($d = 0.93$; $d = 0.91$) at increasing self-esteem. The effect sizes at all time points ranged from small-to-large favouring ICBT-P to the other groups.

3.5. "True" prevention and treatment effects

Results indicated that ICBT-P was superior to ICBT-S at preventing prospective increases in Perfectionistic Concerns ($z = -2.66, p = 0.01$) and depressive symptoms ($z = -2.42$, $p = 0.02$), and superior to waitlist control in preventing a prospective increase in eating disorder symptoms ($z = -2.18$, $p = 0.03$). For Perfectionistic Strivings, anxiety symptoms, and self-esteem there were no significant differences in rates of deterioration among the groups. There were no other significant differences, except for ICBT-S preventing prospective increases on Perfectionism Concerns compared to waitlist ($z = 2.62$, $p = 0.01$). These findings demonstrate ICBT-P had a true preventive impact.

4. Discussion

This study demonstrated the efficacy of ICBT-P in reducing perfectionism, eating disorder, anxiety, and depressive symptoms, and increasing self-esteem in female adolescents. ICBT-P was superior to ICBT-S and control on all outcomes at the majority of time points, and participants continued to improve at 6-month follow-up, which was not the case for the other conditions. The results suggest ICBT-P had a prevention effect on perfectionism, eating disorder and depressive symptoms.

The results indicated ICBT-P demonstrated efficacy as a prevention for eating disorder symptoms in female adolescents. The small-to-large reductions in eating disorder symptoms observed in ICBT-P, maintained

Table 4
Means (standard deviations) of outcome variables across groups over time.

Outcomes	ICBT-P				ICBT-S			Control			
	Pre	Post	3 Mths	6 Mths	Pre	Post	3 Mths	6 Mths	Pre	Post	3 Mths	6 Mths
CPQ Strivings	15.61 (3.37)	12.71 (3.21)	11.05 (2.82)	11.25 (2.07)	13.74 (3.25)	12.10 (3.60)	12.11 (2.94)	12.18 (2.65)	15.17 (3.20)	14.86 (3.51)	12.84 (3.25)	12.84 (3.44)
CPQ Concerns	10.56 (2.29)	8.13 (2.21)	7.50 (2.31)	6.80 (1.85)	9.62 (2.23)	9.05 (3.15)	8.26 (2.73)	8.06 (2.46)	10.46 (2.64)	9.81 (2.95)	9.05 (2.59)	8.74 (3.16)
EDE-Q	1.90 (1.42)	1.29 (1.26)	0.82 (0.85)	0.75 (0.89)	1.67 (1.41)	1.28 (1.21)	1.28 (1.05)	1.21 (0.95)	1.56 (1.37)	1.46 (0.99)	1.41 (1.00)	1.52 (1.03)
RCADS Depression	60.43 (13.94)	52.62 (13.99)	48.65 (15.56)	46.38 (15.76)	61.69 (14.97)	56.40 (12.59)	53.17 (14.71)	53.38 (15.83)	51.67 (13.92)	52.83 (16.16)	48.68 (11.63)	48.08 (13.0)
RCADS Anxiety	61.30 (13.55)	51.69 (14.88)	47.62 (13.83)	47.19 (14.93)	63.88 (14.99)	59.58 (13.71)	54.28 (12.74)	53.62 (11.56)	56.41 (12.41)	57.12 (14.53)	50.34 (11.75)	50.39 (12.97)
RSES	14.25 (4.10)	16.71 (3.80)	19.25 (5.62)	20.70 (5.40)	14.62 (5.52)	16.10 (5.07)	17.63 (5.79)	17.41 (5.56)	15.88 (4.94)	16.37 (5.08)	17.68 (4.44)	18.0 (6.92)

Note. ICBT-P = Internet cognitive behaviour therapy for perfectionism; ICBT-S = Internet cognitive behaviour therapy for nonspecific stress management; Control = waitlist control; CPQ = Clinical Perfectionism Questionnaire; EDE-Q = Eating Disorder Examination-Questionnaire; RCADS = Revised Child Anxiety and Depression Scales; RSES = Rosenberg Self-Esteem Scale.

at 6-month follow-up (*ds* = 0.40 to 0.80), are commensurate with other selective prevention programs for eating disorders (Watson et al., 2016). Specifically, our results compare to other Internet prevention programs, which in a meta-analysis had an average effect size for shape and weight concerns of $d = 0.42$ (Melioli et al., 2016). The effect sizes observed for ICBT-P on depressive and anxiety symptoms ($d = 0.56$ to $d = 0.79$) are somewhat larger than other Internet programs ($d = 0.32$; Melioli et al., 2016).

The prevention effect we demonstrated for eating disorder symptoms is consistent with postulating clinical perfectionism to be an important factor in the onset and maintenance of eating disorder symptoms (Bardone-Cone et al., 2007; Kehayes et al., 2019; Limburg et al., 2017; Pennesi & Wade, 2016). ICBT-P was the only intervention that showed both a true prevention effect for eating disorder symptoms and it also aided symptomatic participants to reduce their symptoms. Most participants were in the healthy category at baseline and very few participants deteriorated over time. Hence, it is likely there was a floor effect. Such findings are typical of prevention studies, particularly in studies that involve predominantly healthy participants (Nehmy & Wade, 2015). The results, however, demonstrate the relevance of perfectionism in preventing eating disorder symptoms, despite the lack of attention to this variable in previous prevention trials (Watson et al., 2016).

The moderate-to-large reductions observed in clinical perfectionism are consistent with previous studies demonstrating large effect sizes of CBT for perfectionism delivered face to face (Lloyd et al., 2015) and on the Internet (ICBT-P; Rozental et al., 2017; Shafran et al., 2017). The results contribute further evidence of a transdiagnostic effect of CBT for perfectionism (Egan et al., 2011), with significant reductions in depression and anxiety (e.g., Egan et al., 2014; Handley, Egan, Kane, & Rees, 2015; Rozental et al., 2017; Shafran et al., 2017). This transdiagnostic impact contrasts to some eating disorder prevention programs, which target risk factors specific to eating disorders (e.g., media literacy; Watson et al., 2016).

The results of the current study contrast to a different unguided Internet CBT approach to perfectionism (Egan et al., 2014), where readings were distributed to participants via email. The Egan, van Noort, et al. (2014) and Egan, Wade, et al. (2014) intervention resulted in similar reductions in perfectionism, but no significant change in psychological symptoms. One hypothesis explaining the greater impact on psychological symptoms in the current study is that the interactive web design is more engaging for participants than email delivery and influences outcome. It should also be noted that there were different samples between the two studies; in the Egan, van Noort, et al. (2014) and Egan, Wade, et al. (2014) study a substantial proportion had psychological disorders, while the present sample were non-clinical.

The results should be interpreted in the context of the following limitations. First, the study did not have adequate statistical power, therefore some effects may not have been detected. Compounding this issue is that the advertisement for the study specified the recruitment was for young women who "self-identified as having difficulties with perfectionism". It is possible that this meaning may have differed across participants resulting in varying levels of perfectionism. This is likely to introduce more variance thereby reducing power. Second, we did not assess the onset of clinical eating disorders over follow-up. This omission is inherent to many eating disorder prevention studies, where researchers consider risk factor reduction rather than onset of a diagnosis of an eating disorder (Watson et al., 2016, 2017). Third, there was a relatively high attrition rate, commensurate with other Internet eating disorder prevention studies (Melioli et al., 2016), and unguided ICBT for other disorders (Andersson, 2016). Fourth, participation in the content was relatively low; 78% completed session 1, and half completed sessions 4–8. This is commensurate with other Internet-based eating disorder prevention studies (e.g., 89%, Stice, Rohde, Durant, & Shaw, 2012, p. 57%, Stice, Rohde, Shaw, & Gau, 2017). Future research should clarify whether adding guidance to ICBT-P can improve

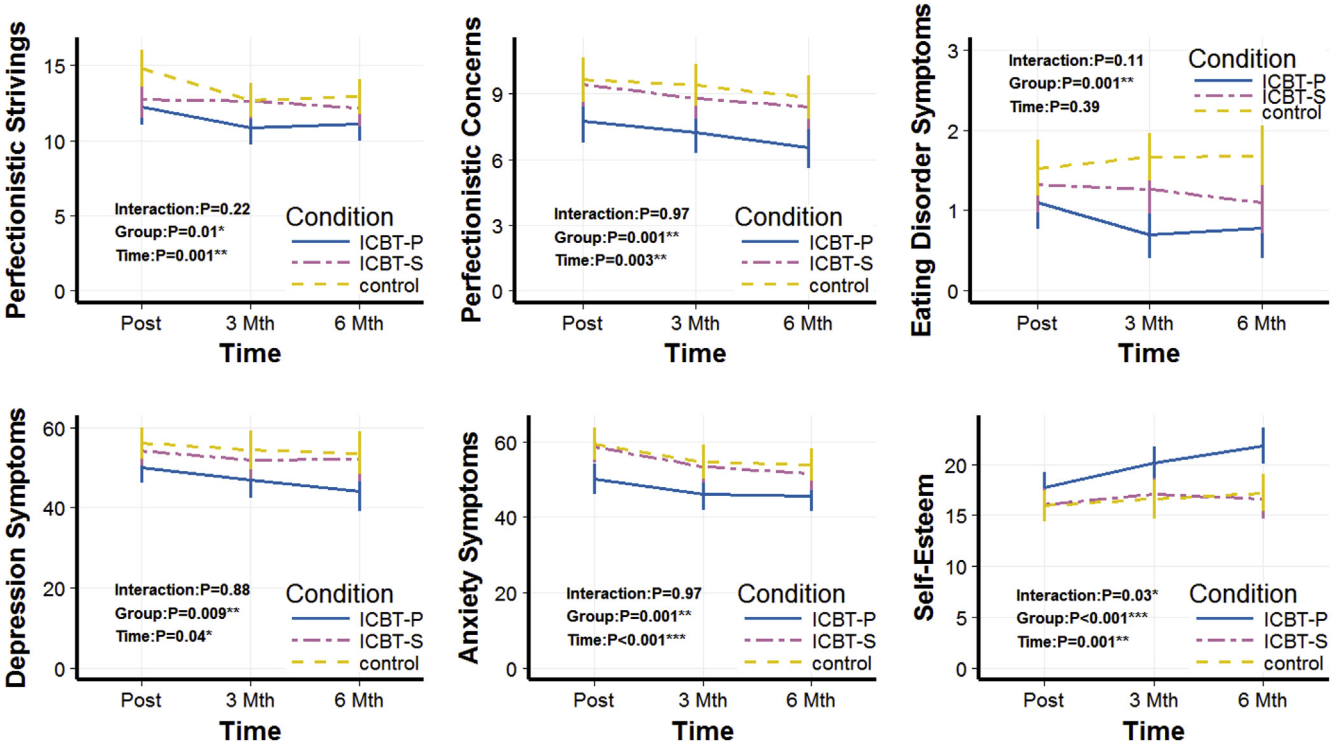

Fig. 2. Pre-treatment-adjusted outcomes for each group at each time point. *Note.* Results of the generalized linear mixed models. Outcomes are adjusted for the pre-test group means. The error bars are the 95% confidence interval for the mean. Shown in the figure text are the *P* values from the omnibus test of the interaction effect (Group × Time) and the main effects (Group, Time). The primary RCT outcomes are clinical perfectionism (made up of perfectionistic strivings and perfectionistic concerns) and eating disorder symptoms. The secondary outcomes are depression symptoms, anxiety symptoms, and self-esteem. ICBT-P = Internet cognitive behaviour therapy for perfectionism; ICBT-S = Internet cognitive behaviour therapy for nonspecific stress management; Control = waitlist control.

participation and benefit; while at least 10 minutes per week of therapist contact increases uptake in Internet interventions (Andersson, 2016), more therapist guidance did not result in better outcomes for ICBT-P (Zetterberg et al., 2019).

A fifth limitation of the study was that participants under the age of 18 received an extra component of a parental newsletter, to encourage parents to help apply the interventions, while those above 18 did not receive this component. This introduces a confound not able to be addressed in the current research. It may be that age or additional support make a difference to outcome. Finally, we provided participants in the treatment groups a feedback report that compared their clinical perfectionism at pre-treatment with the respective time points, to encourage continued participation. However, it is possible that feedback may have influenced how participants completed follow-up assessments

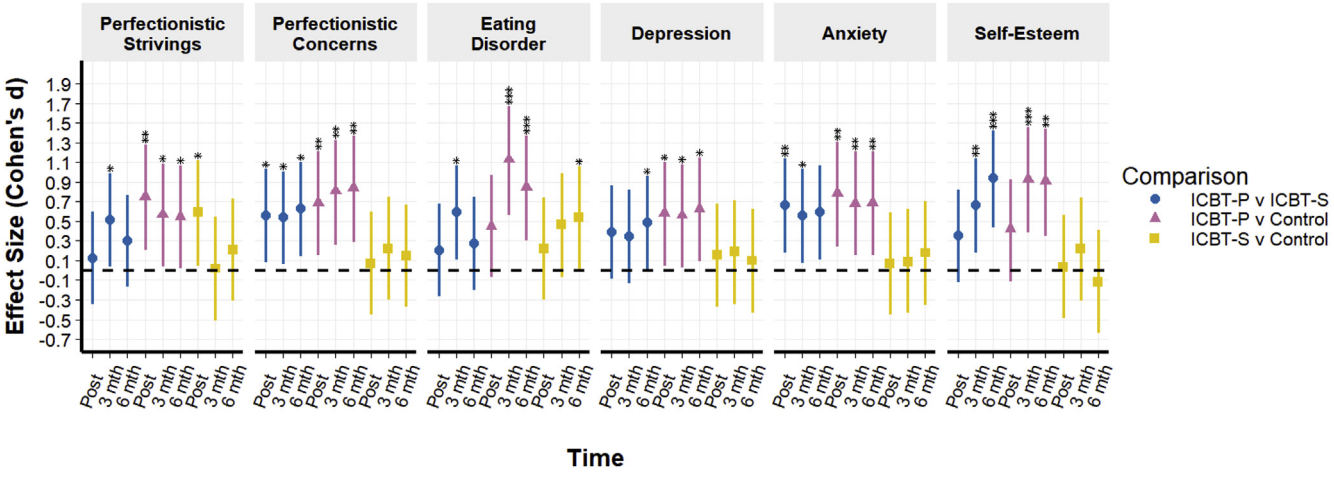

Fig. 3. Between-group post hoc test results and effect sizes. The asterisks represent the *p* values from post hoc least significant difference (LSD) contrasts performed within the generalized linear mixed model (GLMM) analysis for between-group differences at each time point (*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$). Effect sizes for between-group differences are shown by the lines (Cohen's *d* and 95% confidence interval). Effect sizes were adjusted for pre-test group means on the respective measure. Positive effect sizes favour ICBT-P when compared to ICBT-S and control, and ICBT-S when compared to control. According to Cohen's (1988) conventions, an effect size ≥ 0.2 is small, ≥ 0.5 is medium, and ≥0.8 is large. ICBT-P = Internet cognitive behaviour therapy for perfectionism; ICBT-S = Internet CBT for nonspecific stress management; Control = waitlist control; Perfectionistic Strivings = Clinical Perfectionism Questionnaire (CPQ) Factor 1; Perfectionistic Concerns = CPQ Factor 2; Eating Disorder = Global score of Eating Disorder Examination-Questionnaire; Depression = *T*-score for depression subscale on the Revised Child Anxiety and Depression Scales (RCADS); Anxiety = *T*-score for total anxiety scale on the RCADS; Self-Esteem = Total score of the Rosenberg Self-Esteem Scale.

and may have influenced outcome. For example, if an improvement was noted at one time point a participant may feel pressured to do as well or better at the next time point.

In summary, ICBT-P resulted in reductions in clinical perfectionism, symptoms of eating disorders, anxiety and depression and increases in self-esteem with changes maintained at 6-month follow-up. The program also resulted in prevention effects in clinical perfectionism, eating disorder and depressive symptoms. Future research should examine ways to enhance retention in Internet delivered programs in order to increase the public health significance of these approaches, and a contrast to a guided Internet delivered format could inform cost-effectiveness modelling.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.brat.2019.103429.

References

Andersson, G. (2016). Internet-delivered psychological treatments. *Annual Review of Clinical Psychology, 12*, 157–179. https://doi.org/10.1146/annurev-clinpsy-021815-093006.

Bardone-Cone, A. M., Wonderlich, S. A., Frost, R. O., Bulik, C. M., Mitchell, J. E., Uppala, S., et al. (2007). Perfectionism and eating disorders: Current status and future directions. *Clinical Psychology Review, 27*, 384–405.

Binford, R. B., Le Grange, D., & Jellar, C. C. (2005). Eating Disorders Examination versus Eating Disorders Examination-Questionnaire in adolescents with full and partial--syndrome bulimia nervosa and anorexia nervosa. *International Journal of Eating Disorders, 37*, 44–49. https://doi.org/10.1002/eat.20062.

Brosan, L., & Todd, G. (2009). *Overcoming stress.* London, UK: Constable & Robinson.

Chorpita, B. F., Yim, L., Moffitt, C., Umemoto, L. A., & Francis, S. E. (2000). Assessment of symptoms of DSM-IV anxiety and depression in children: A revised Child anxiety and depression scale. *Behaviour Research and Therapy, 38*, 835–855. https://doi.org/10.1016/S0005-7967(99)00130-8.

ClinTools (2008). *Reliable and clinical change generator (version trial).* Retrieved from http://www.clintools.com/products/rcg/reliable_change_generator.html.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, New Jersey: Erlbaum.

Devilly, G. J., & Borkovec, T. D. (2000). Psychometric properties of the credibility/expectancy questionnaire. *Journal of Behaviour Therapy and Experimental Psychiatry, 31*, 73–86. https://doi.org/10.1016/S0005-7916(00)00012-4.

Dry, S. M., Kane, R. T., & Rooney, R. M. (2015). An investigation into the role of coping in preventing depression associated with perfectionism in preadolescent children. *Frontiers in Public Health, 3*, 190. https://doi.org/10.3389/fpubh.2015.00190.

Egan, S. J., Shafran, R., Lee, M., Fairburn, C. G., Cooper, Z., Doll, H. A., et al. (2016). The reliability and validity of the Clinical Perfectionism Questionnaire in eating disorder and community samples. *Behavioural and Cognitive Psychotherapy, 44*, 79–91. https://doi.org/10.1017/S1352465814000629.

Egan, S. J., van Noort, E., Chee, A., Kane, R. T., Hoiles, K. J., Shafran, R., et al. (2014). A randomised controlled trial of face to face versus pure online self-help cognitive behavioural treatment for perfectionism. *Behaviour Research and Therapy, 63*, 107–113. https://doi.org/10.1016/j.brat.2014.09.009.

Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A clinical review. *Clinical Psychology Review, 31*, 203–212. https://doi.org/10.1016/j.cpr.2010.04.009.

Egan, S. J., Wade, T. D., Shafran, R., & Antony, M. M. (2014). *Cognitive-behavioural treatment of perfectionism.* (NY: Guilford).

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders, 16*, 363–370. https://doi.org/10.1002/1098-108X(199412).

Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). *Clinical perfectionism questionnaire. Unpublished scale.* Oxford, UK: University of Oxford.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2009). G*Power 3: A flexible statistical power analysis program for the social, behavioural, and biomedical sciences. *Behaviour Research Methods, 39*, 175–191. https://doi.org/10.3758/BF03193146.

Gillham, J. E., Shatté, A. J., & Freres, D. R. (2000). Preventing depression: A review of cognitive-behavioural and family interventions. *Applied and Preventive Psychology, 9*, 63–88.

Handley, A. K., Egan, S. J., Kane, R. T., & Rees, C. S. (2015). A randomised controlled trial of group cognitive behavioural therapy for perfectionism. *Behaviour Research and Therapy, 68*, 37–47. https://doi.org/10.1016/j.brat.2015.02.006.

Hill, L. S., Reid, F., Morgan, J. F., & Lacey, J. H. (2010). SCOFF, the development of an eating disorder screening questionnaire. *International Journal of Eating Disorders, 43*, 44–351. https://doi.org/10.1002/eat.20679.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59*, 12–19. https://doi.org/10.1037/0022-006X.59.1.12.

Johnson, S., Egan, S. J., Andersson, G., Carlbring, P., Shafran, R., & Wade, T. D. (2019). Internet-delivered cognitive-behavioural therapy for perfectionism: Targeting dysmorphic concern. *Body Image, 30*, 44–55. https://doi.org/10.1016/j.bodyim.2019.05.002.

Johnson, J., Shu, C. Y., Hoiles, K. J., Clarke, P. J. F., Dunlop, P. D., Watson, H. J., et al. (2018). Perfectionism is associated with higher eating disorder symptoms and lower remission in children and adolescents with eating disorders. *Eating Behaviors, 30*, 55–60. https://doi.org/10.1016/j.eatbeh.2018.05.008.

Kehayes, I. L. L., Smith, M. M., Sherry, S. B., Vidovic, V., & Saklofske, D. H. (2019). Are perfectionism dimensions risk factors for bulimic symptoms? A meta-analysis of longitudinal studies. *Personality and Individual Differences, 138*, 117–125.

Limburg, K., Watson, H. J., Hagger, M. S., & Egan, S. J. (2017). The relationship between perfectionism and psychopathology: A meta-analysis. *Journal of Clinical Psychology, 73*, 1301–1326. https://doi.org/10.1002/jclp.22435.

Lloyd, S., Schmidt, U., Khondoker, M., & Tchanturia, K. (2015). Can psychological interventions reduce perfectionism? A systematic review and meta-analysis. *Behavioural and Cognitive Psychotherapy, 43*, 705–731. https://doi.org/10.1017/S1352465814000162.

Melioli, T., Bauer, S., Franko, D. L., Moessner, M., Ozer, F., Chabrol, H., et al. (2016). Reducing eating disorder symptoms and risk factors using the internet: A meta-analytic review. *International Journal of Eating Disorders, 49*, 19–31. https://doi.org/10.1002/eat.22477.

Mitchell, J. H., Newall, C., Broeren, S., & Hudson, J. L. (2013). The role of perfectionism in cognitive behaviour therapy outcomes for clinically anxious children. *Behaviour Research and Therapy, 51*, 547–554. https://doi.org/10.1016/j.brat.2013.05.015.

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2004). Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behaviour Research and Therapy, 42*, 551–567. https://doi.org/10.1016/S0005-7967(03)00161-X.

Nehmy, T. J., & Wade, T. D. (2015). Reducing the onset of negative affect in adolescents: Evaluation of a perfectionism program in a universal prevention setting. *Behaviour Research and Therapy, 67*, 55–63. https://doi.org/10.1016/j.brat.2015.02.007.

Pennesi, J. L., & Wade, T. D. (2016). A systematic review of the existing models of disordered eating: Do they inform the development of effective interventions? *Clinical Psychology Review, 43*, 175–192.

Qualtrics (2015). *Qualtrics [software].* Provo, USA: Author.

Riley, C., Lee, M., Cooper, Z., Fairburn, C. G., & Shafran, R. (2007). A randomised controlled trial of cognitive-behaviour therapy for clinical perfectionism: A preliminary study. *Behaviour Research and Therapy, 45*, 2221–2231. https://doi.org/10.1016/j.brat.2006.12.003.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, USA: Princeton University Press.

Rozental, A., Shafran, R., Wade, T., Egan, S., Bergman Nordgren, L., Carlbring, P., et al. (2017). A randomized controlled trial of Internet-Based Cognitive Behaviour Therapy for perfectionism including an investigation of outcome predictors. *Behaviour Research and Therapy, 95*, 79–86. https://doi.org/10.1016/j.brat.2017.05.015.

Saghaei, M. (2004). Random allocation software for parallel group randomized trials. *BMC Medical Research Methodology, 4*, 1. https://doi.org/10.1186/1471-2288-4-26.

Shafran, R., Cooper, Z., & Fairburn, C. G. (2002). Clinical perfectionism: A cognitive–-behavioural analysis. *Behaviour Research and Therapy, 40*, 773–791. https://doi.org/10.1016/S0005-7967(01)00059-6.

Shafran, R., Egan, S., & Wade, T. (2010). *Overcoming perfectionism: A self-help guide using cognitive behavioural techniques.* London: Robinson.

Shafran, R., Wade, T., Egan, S., Kothari, R., Allcott-Watson, H., Carlbring, P., et al. (2017). Is the devil in the detail? A randomized controlled trial of guided internet based CBT for perfectionism. *Behaviour Research and Therapy, 95*, 99–106. https://doi.org/10.1016/j.brat.2017.05.014.

Sheehan, D. V., Sheehan, K. H., Shytle, R. D., Janavs, J., Bannon, Y., Rogers, J. E., et al. (2010). Reliability and validity of the mini international neuropsychiatric interview for children and adolescents (MINI-Kid). *The Journal of Clinical Psychiatry, 71*, 313–326. https://doi.org/10.4088/JCP.09m05305whi.

Shochet, I. M., Dadds, M. R., Holland, D., Whitefield, K., Harnett, P. H., O, & sgarby, S. M. (2001). The efficacy of a universal school-based program to prevent adolescent depression. *Journal of Clinical Child Psychology, 30*, 303–315. https://doi.org/10.1207/S15374424JCCP3003_3.

Steele, A. L., & Wade, T. D. (2008). A randomised trial investigating guided self-help to reduce perfectionism and its impact on bulimia nervosa: A pilot study. *Behaviour Research and Therapy, 46*, 1316–1323. https://doi.org/10.1016/j.brat.2008.09.006.

Stice, E., Marti, C. N., & Durant, S. (2011). Risk factors for onset of eating disorders: Evidence of multiple risk pathways from an 8-year prospective study. *Behaviour Research and Therapy, 49*, 622–627. https://doi.org/10.1016/j.brat.2011.06.009.

Stice, E., Rohde, P., Durant, S., & Shaw, H. (2012). A preliminary trial of a prototype internet dissonance-based eating disorder prevention program for young women with body image concerns. *Journal of Consulting and Clinical Psychology, 80*, 907–916.

Stice, E., Rohde, P., Shaw, H., & Gau, J. M. (2017). Clinician-led, peer-led, and internet-delivered dissonance-based eating disorder prevention programs: Acute effectiveness of these delivery modalities. *Journal of Consulting and Clinical Psychology, 85*, 883–895.

Thiels, C., Schmidt, U., Treasure, J., Garthe, R., & Troop, N. (1998). Guided self-change for bulimia nervosa incorporating use of a self-care manual. *American Journal of Psychiatry, 155*, 947–953. https://doi.org/10.1176/ajp.155.7.947.

Tyrka, A. R., Waldron, I., Graber, J. A., & Brooks-Gunn, J. (2002). Prospective predictors of the onset of anorexic and bulimic syndromes. *International Journal of Eating Disorders, 32*, 282–290.

Wade, T. D., Wilksch, S. M., Paxton, S. J., Byrne, S. M., & Austin, S. B. (2015). How perfectionism and ineffectiveness influence growth of eating disorder risk in young adolescent girls. *Behaviour Research and Therapy, 66*, 56–63. https://doi.org/10.1016/j.brat.2015.01.007.

Watson, H. J., Goodman, E. L., McLagan, N. B., Joyce, T., French, E., Willan, V., et al. (2017). Quality of randomized controlled trials in eating disorder prevention. *International Journal of Eating Disorders, 50*, 459–470. https://doi.org/10.1002/eat.22712.

Watson, H. J., Joyce, T., Willan, V., Kane, R. T., Tanner-Smit, E. E., McCormack, J., & Egan, S. J. (2016). Prevention of eating disorders: A systematic review of randomized controlled trials. *International Journal of Eating Disorders, 49*, 833–862. https://doi.org/10.1002/eat.22577.

Wilksch, S., Durbridge, M., & Wade, T. (2008). A preliminary controlled comparison of programs designed to reduce risk of eating disorders targeting perfectionism and media literacy. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*, 939–947. https://doi.org/10.1097/CHI.0b013e3181799f4.

Zetterberg, M., Carlbring, P., Andersson, G., Berg, M., Shafran, R., & Rozental, A. (2019). Internet-based cognitive behavioral therapy for perfectionism: Comparing regular therapist support and support upon request. *Internet Interventions, 17*, 100237. https://doi.org/10.106/j.invent.2019.02.001.