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Guided Internet-delivered cognitive behaviour therapy for perfectionism in a non-clinical sample of adolescents: A study protocol for a randomised controlled trial

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ABSTRACT

Background: Perfectionism is elevated across a range of psychopathologies and has been shown to impede treatment outcomes. There is also evidence suggesting elevated perfectionism may contribute to the onset and maintenance of non-suicidal self-injury. There is a growing body of evidence suggesting that Internet-delivered cognitive-behavioural therapy for perfectionism reduces perfectionism and symptoms of psychological disorders and that reductions are maintained at 3-month and 6-month follow-up. There may also be reductions in non-suicidal self-injury, although no study has investigated this potential benefit. Given that associations between perfectionism and psychopathology are observed across both adults and adolescents, the need for the development of interventions targeting adolescents is essential for early intervention and prevention.

Methods: The present study will employ a randomised controlled trial to examine the efficacy of 8-week guided Internet-delivered cognitive-behavioural therapy for perfectionism in adolescents compared to a waitlist control group. The primary outcome is perfectionism, and secondary outcomes include symptoms of psychological disorders, well-being, and non-suicidal self-injury. Outcomes will be assessed at pre-intervention, post-intervention, 1-month follow-up, 3-month follow-up, and 6-month follow-up. A minimum of 240 participants will be recruited online through social media, Australian universities, and schools across Australia. Generalised linear mixed models will be used to test for changes in outcomes between the intervention group and the waitlist control.

Discussion: The outcomes of this trial will contribute to the literature on perfectionism and psychopathology in adolescents, as well as the efficacy of guided Internet-delivered interventions for adolescents.

Trial registration: The trial was registered on the 20th of June 2019 at the Australia New Zealand Clinical Trials Registry (ACTRN12619000881134).

Trial status: This is protocol version 1.0. Participant recruitment began on 31 July 2019 and is still actively running with an anticipated completion date in the fourth quarter of 2020.

1. Introduction

Clinical perfectionism is the pursuit of personally demanding standards despite adverse consequences (Shafran et al., 2000). Perfectionism is a transdiagnostic process, and as such is associated with symptoms of psychological distress, as well as the development and maintenance of a range of psychopathologies including mood, anxiety, and eating disorders (Egan et al., 2011; Limburg et al., 2017). Subsequently, perfectionism is also known to impede treatment outcomes (Egan et al., 2011). There is evidence suggesting elevated perfectionism may also contribute to the onset and maintenance of non-suicidal self-injury (NSSI; deliberate and self-inflicted damage to one's own body tissue in the absence of suicidal intent) (Claes et al., 2012; International Society for the Study of Self-Injury, 2015). Associations between perfectionism and psychopathology are also observed within adolescents, and given that adolescence is an important formative

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period, the presence of psychological distress during this time can be particularly burdensome due to it being a period of heightened stress and change (Huggins et al., 2008; Johnson et al., 2019; Spear, 2000). Additionally, the onset of many psychological disorders occur prior to, or during, adolescence and rates of psychopathology in adolescents are comparable to those in adults (Kessler et al., 2007). Examining the role of development and maintenance factors such as perfectionism during this period may inform the development of interventions that can reduce perfectionism, as well as symptoms of associated disorders (Limburg et al., 2017). There may also be reductions in other associated behaviours such as non-suicidal self-injury, although to date no study has explored this potential benefit.

A meta-analysis demonstrated that cognitive behavioural therapy (CBT) for perfectionism is efficacious in reducing levels of perfectionism, as well as symptoms of mood, anxiety, and eating disorders in adults (Lloyd et al., 2015). There are also several studies that have demonstrated the efficacy of Internet-delivered CBT for perfectionism (ICBT-P) in adult samples (Johnson et al., 2019; Egan et al., 2014; Kothari et al., 2019; Rozental et al., 2017; Shafran et al., 2017; Zetterberg et al., 2019). Internet-based interventions provide several advantages over face-to-face therapy, including increased accessibility and reduced cost (Stjerneklar et al., 2018). The several studies examining ICBT-P have yielded promising results, with significant reductions in levels of perfectionism, as well as symptoms of associated disorders, with reductions being maintained at 12-month follow-up (Rozental et al., 2017). To date, only one study has examined the efficacy of ICBT-P in a sample of adolescents (Shu et al., 2019). Researchers examined the efficacy of unguided ICBT-P compared to an active treatment condition, and a waitlist control group in preventing eating disorder onset in a sample of adolescent females (Shu et al., 2019). Results showed that unguided ICBT-P was efficacious in reducing clinical perfectionism, and that reductions were maintained at 6-month follow-up (Shu et al., 2019). While the findings provide evidence for the utility of Internet-delivered interventions for the prevention of eating disorders in adolescents, there has been no investigation of the efficacy of guided ICBT-P across a broad range of outcomes in a general sample of adolescents.

2. Methods

2.1. Design and aims

This study will be a two-arm randomised controlled trial comparing the efficacy of guided ICBT-P to a waitlist control in adolescents aged 13- to 18-years. The first aim of the present study is to examine the efficacy of ICBT-P in reducing perfectionism and symptoms of eating, mood, and anxiety disorders, as well as increasing well-being. It is predicted that the intervention group will report significantly greater pre–post, 1-month, 3-month, and 6-month follow-up decreases in perfectionism, eating disorder symptoms, depression, anxiety and increases in well-being, compared to the waitlist group.

A second exploratory aim of this research is to explore the impact of ICBT-P in reducing non-suicidal self-injurious thoughts and behaviours, and explore the potential mechanisms by which this may occur (i.e., repetitive negative thinking and attentional allocation). It is predicted that the intervention group will report significantly greater pre- to post, 1-month, 3-month, and 6-month follow-up decreases in non-suicidal self-injurious thoughts and behaviours compared to the waitlist group.

The trial will be conducted in accordance with the National Statement on Ethical Conduct in Human Research (2007, revised 2018). The study protocol follows recommendations of the SPIRIT 2013 Checklist for clinical trial protocols. The registration process (including obtaining informed consent) and the entire study will be conducted online at overcomingperfectionism.com.au.

2.2. Study population

Inclusion criteria include: between 13- to 18-years of age, able to read and write in English, and currently living in Australia. If participants are identified with a high or imminent risk of suicide they will be excluded from the study, and an adverse events plan will be followed to ensure their safety. Any individual excluded from the study on this basis will be able to take part in the study at a later time. Participants will be recruited through social media advertising, at a local university, and through private schools across Australia. Given previous clinical trials for perfectionism included larger proportions of female participants compared to males (Kothari et al., 2019; Shafran et al., 2017), measures will be taken to increase the number of male participants. This will include targeted paid social media advertising, as well as active recruitment through all-male schools.

2.3. Sample size

An a-priori power analysis was conducted to estimate the sample size using G*Power (Version 3.1) (Faul et al., 2007). Previous studies that have conducted randomised controlled trials of Internet-delivered interventions for perfectionism, using perfectionism as a primary outcome measure, have found moderate to large effect sizes (Egan et al., 2014; Shu et al., 2019). To achieve 80% power at an alpha level of 0.01 with two groups and four time points, the required sample size is 180 (90 per group). The alpha level was adjusted to account for the separate GLMM analyses being conducted on each of the outcomes. Similar interventions in adult populations reported 20% attrition (Rozental et al., 2017), and guided internet interventions for anxiety and depression among adolescents reported 5%–15% attrition at post-assessment and 28–33% attrition at follow-up assessment (Stjerneklar et al., 2019; Topooco et al., 2018). Approximately 33% attrition is therefore expected. To account for 33% attrition 240 participants (120 per group) will be recruited.

2.4. Procedure

All recruitment materials will include a link to the study website where potential participants will read the information sheet and complete an online consent form. Participants will be treated as mature minors. Their capacity to provide informed consent will be evaluated through the completion of a five-item questionnaire assessing their understanding of what is involved with participation. Those unable to answer the questions correctly will require parent/caregiver consent before they can participate. Participants who provide consent will be contacted by telephone to briefly discuss the study and to be screened for the exclusion criteria. All participants will be screened for suicidality before taking part in the study. This will be done using the Columbia Suicide Severity Rating Scale (a well-validated and commonly used measure appropriate for individuals aged 13+ years) (Posner et al., 2011). If an individual scores 4 or higher (indicating active suicidal ideation with some intent to act on these thoughts), a complete suicide risk assessment will be conducted. The participants' risk score will be calculated using the assessment tool. An adverse events plan has been developed to provide a structured approach to managing risk and will be followed for those with a high or imminent risk of suicide. These individuals will be welcome to take part in the study when risk of suicide is reduced.

Participants in the intervention group will be informed that there will be eight modules in the program and they should aim to complete one per week for eight weeks. Participants randomly allocated into the control group will be informed and reminded that they are welcome to complete the program once all data has been collected. All participants will be asked to complete a series of measures at pre-intervention, post-intervention, 1-month follow-up, 3-month follow-up, and 6-month follow-up. Weekly emails and text messages will be sent to participants

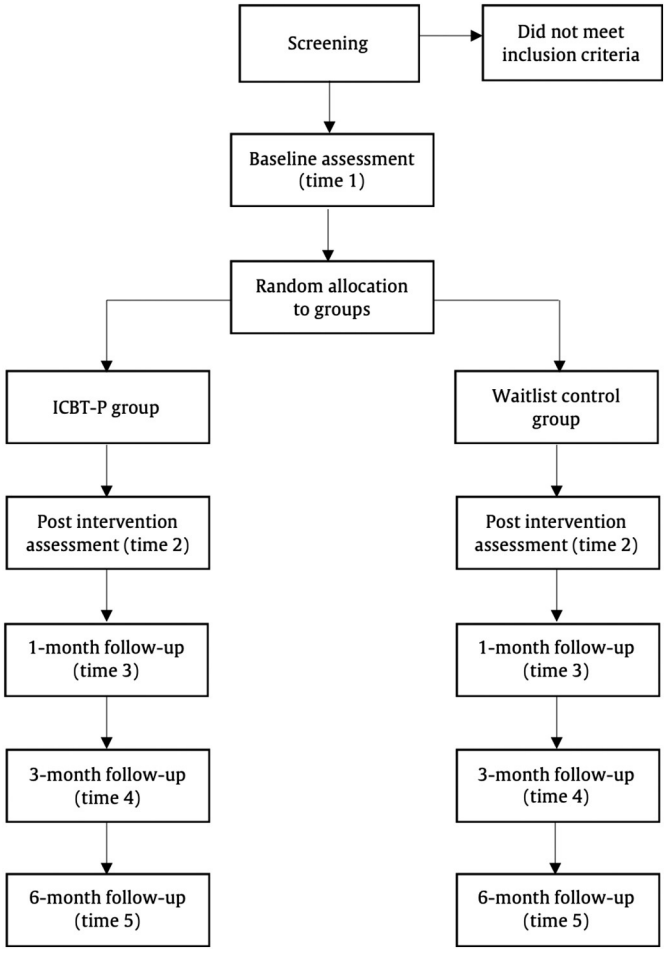

Fig. 1. A flow chart of participants included in the randomised controlled trial.

to remind them to complete the sessions and assessments at each time point. At any time during the intervention and after completing the program, participants have the right to withdraw without the obligation to provide their reasons, as stated in the during the consent process. Fig. 1 illustrates a flow chart of participant group allocation.

2.5. Randomisation

After participants have been screened and deemed eligible for the study, they will be assigned a participant ID number and registered as participants for the trial. Once participants have completed the baseline measures, they will be allocated into one of two groups (either the intervention group or the waitlist control). Random Allocation Software version 1.0 (Saghaei, 2004) will be used to randomly allocate participants into either the intervention group or control group using block randomisation procedures to ensure an equal number of participants in both conditions (fixed blocks of 4). Participant allocation will not be concealed as the researchers are required to provide personalised feedback to participants in the intervention group.

2.6. Outcomes

Self-report measures of perfectionism, symptoms of eating, mood, and anxiety disorders, repetitive negative thinking, and attentional control will be administered at four time points: at baseline (before the intervention begins), post-intervention (immediately after the completion of module 8), 1-month follow-up, 3-month follow-up, and 6-month follow-up. Self-report measures of well-being and non-suicidal self-injury will also be administered at these timepoints and after each module (i.e., weekly) due to the fluctuating nature of non-suicidal self-injury and psychological well-being. Measures of self-injury will only be administered for those who indicate they have previously had thoughts about engaging in self-injury pre-intervention. Participants randomly allocated to the intervention group will also complete a measure of treatment adherence and credibility at the end of each module. See Table 1 for an overview of the assessment schedule.

2.6.1. Primary outcomes

The primary outcome measure is the Clinical Perfectionism Questionnaire (CPQ) (Fairburn et al., 2003). The CPQ is a 12-item self-report measure that assesses levels of clinical perfectionism over the past month (Fairburn et al., 2003). Items are scored using a 4-point Likert scale ranging from 1 (not at all) to 4 (all the time). There is evidence for a two-factor model of the CPQ with a perfectionistic strivings factor and concerns over mistakes factor. Recent evidence, however, has suggested that one factor provides the best fit (Prior et al., 2018). This single-factor CPQ has demonstrated acceptable internal consistency in a clinical sample ($\alpha = 0.87$) (Prior et al., 2018).

2.6.2. Secondary outcomes

The Eating Disorder Examination Questionnaire (EDE-Q) is a 28-item self-report scale that measures specific eating psychopathology over the past 28 days (Fairburn and Beglin, 1994). The EDE-Q has demonstrated reliability and validity in samples of adolescents (Binford et al., 2005), and has been used for online interventions in samples of

Table 1
Outline of the Assessment Points During the Randomised Controlled Trial.

Measure	Assessment point				Assessment point							
	Pre-test	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6	Module 7	Module 8/ post	1-month follow-up	3-month follow-up	6-month follow-up
CPQ	x								x	x	x	x
RTQ	x								x	x	x	x
ACS	x								x	x	x	x
EDE-Q	x								x	x	x	x
RCADS	x								x	x	x	x
GHQ-12	x	x	x	x	x	x	x	x	x	x	x	x
ISAS[a]	x	x	x	x	x	x	x	x	x	x	x	x
FQ		x	x	x	x	x	x	x	x			
CEQ		x	x	x	x	x	x	x	x			

Note. CPQ = Clinical Perfectionism Questionnaire, RTQ = Repetitive Thinking Questionnaire, ACS = Attention Control Scale, EDE-Q = Eating Disorder Examination – Questionnaire, RCADS = Revised Child Anxiety and Depression Scale, GHQ-12 = General Health Questionnaire-12, ISAS = Inventory of Statements about Self-Injury, FQ = Feedback Questionnaire, CEQ = Credibility/Expectancy Questionnaire.

[a] Participants will only be presented with the ISAS at subsequent time points if they indicated at pre-test that they have a history of non-suicidal self-injury.

adolescents (Shu et al., 2019; Celio et al., 2000; Doyle et al., 2008). Excellent internal consistency of the global EDE-Q score has been reported in a female adolescent sample (α = 0.96) (Shu et al., 2019).

The Revised Child Anxiety and Depression Scale (RCADS) is a 47-item child self-report scale that measures the frequency of symptoms of anxiety and depression in people aged 8- to 18-years (Chorpita et al., 2000). Several studies have demonstrated support for the RCADS in samples of non-clinical adolescents (Chorpita et al., 2000; de Ross et al., 2002). Excellent internal consistency for the major depressive disorder subscale (α = 0.88) and excellent internal consistency for the total anxiety scale (α = 0.94) has been reported in a sample of female adolescents aged 13- to 19-years (Shu et al., 2019).

The Inventory of Statements About Self-Injury (ISAS) (Klonsky and Glenn, 2009), will be used to assess the history, frequency, and type of NSSI engaged in. Participants report if they have ever engaged in NSSI, and then rate the frequency of 12 common NSSI behaviours (e.g., cutting, self-battery, and burning). The measure also assesses the context in which NSSI occurs (e.g., pain during self-injury). A mean test-retest correlation of 0.68 suggests good reliability for the behavioural scales across a 12-month period (Glenn and Klonsky, 2011). This measure has been used in previous research with similar populations, aged 13- to 24-years (Sadeh et al., 2014) with demonstrated reliability. In addition to the ISAS, three further questions will be asked to evaluate thoughts about self-injury, as well as the intensity of thoughts and behaviours. The participants will be presented with a definition of self-injury, and asked if they have had thoughts about engaging in self-injury in the past week. If participants endorse thoughts of self-injury, they will be asked about the intensity of those thoughts. Responses will be rated from 1 (passing thoughts) to 7 (intense thoughts about engaging in self-injury). If participants indicate that they have engaged in non-suicidal self-injurious behaviours in the past week, they will be asked about the severity of that behaviour *on average* and during the *most intense episode*. Responses will be rated from 1 (no physical damage) to 7 (emergency medical care required).

The General Health Questionnaire-12 (GHQ-12) is a 12-item self-report measure of well-being (Goldberg, 1992). The GHQ-12 has demonstrated good reliability and validity in an Australian sample of Adolescents (aged 11- to 15-years) (Tait et al., 2003).

2.6.3. Mechanisms of change

The Repetitive Thinking Questionnaire – Short (RTQ) (McEvoy et al., 2014) is a 10-item measure which assesses repetitive thinking about one's negative experiences. The RTQ requires individuals to consider how they typically feel when distressed and then rate how true each of the 10 items are of their experience after the distressing situation. The RTQ has demonstrated good internal consistency in community samples (α = 0.89) and has demonstrated convergent validity with measures of negative affect and psychological distress (McEvoy et al., 2014). There is evidence to suggest that the RTQ performs equally as well in adolescents aged 13- to 17-years (McEvoy et al., 2019).

The Attentional Control Scale (ACS) (Derryberry and Reed, 2002) will be used to assess voluntary control over attention. This measure contains 20 items in two subscales: attentional focusing (9 items) and attentional shifting (11 items). There is psychometric evidence which supports the use of the ACS in adult populations (α = 0.82 for Focusing and α = 0.71 for Shifting) (Judah et al., 2014). While there are no previous studies using this measure in an adolescent population, a review of the content and phrasing indicates that it is suitable for younger participants. A readability check in Microsoft Word shows a Flesh-Kincaid Reading Grade of 7.4 for this measure, which indicates the content is readable by someone between the 7th and 8th grade. Reliability and validity checks will be performed once data collection has been completed.

2.6.4. Treatment credibility and expectancy

The Credibility/Expectancy Questionnaire (CEQ) is a 6-item measure that assesses treatment credibility and expectancy (Devilly and Borkovec, 2000). Items are scored using a 9-point Likert scale. The CEQ has demonstrated excellent internal consistency (Devilly and Borkovec, 2000).

2.6.5. Treatment adherence

Adherence will be measured weekly using the feedback questionnaire which has four questions measuring compliance in completing the modules and is derived from a compliance measure for treatment of bulimia nervosa (Thiels et al., 2001).

2.6.6. Website analytics

Analytics will be used to gather information on length of time taken to complete modules, which modules are accessed, and drop-out point.

2.7. Intervention

The present Internet-delivered perfectionism program is based on the second edition of the book *Overcoming Perfectionism: A self-help guide using cognitive behavioural techniques* (Shafran et al., 2018). The intervention website for the current study was adapted from a website designed by Shu et al. (2019), where the efficacy of unguided ICBT-P was examined in female adolescents. The Shu et al. (2019) website content was developed with input from Assistant Professor Hunna Watson and Dr Sarah Egan, an expert in CBT for perfectionism, to create an eight-session interactive online program suitable for adolescents. Shu et al.'s (2019) website was modified in the current study by writing examples for male and female adolescents, and the addition of homework submission portals and instructions for each module to facilitate guidance. The program has two main components: psychoeducation, and learning new skills to overcome perfectionism. Participants will be asked to complete one module per week over the course of eight weeks. Participants will have access to a list of support services should they experience any psychological discomfort or harm during or after the study. See Table 2 for an outline of the intervention modules.

2.7.1. Guidance

The intervention will be guided in that participants will receive brief weekly feedback on completed homework tasks. In line with previous ICBT-P studies (e.g. Rozental et al., 2017) this feedback will take about 5 minutes per participant and be provided within 48-hours of receipt of homework via email. Participants will be given the opportunity to submit one worksheet/activity from each module of the program. The feedback responses are scripted, and will allow for a small degree of personalisation for each participant.

2.8. Statistical analysis

Once data collection is complete, it will be downloaded into SPSS and Generalised Linear Mixed Models (GLMM) will be used to test for changes in outcomes between the intervention group and the waitlist control group. All statistical analyses will be based on the intention-to-treat principle. The present GLMM will include one nominal random effect (participant), one categorical fixed effect (group: intervention, control), one ordinal fixed effect (time: pre-intervention, post-intervention, 3-month follow-up, 6-month follow-up), and the Group x Time interaction. To optimise the likelihood of convergence, a separate GLMM analysis will be run for each of the outcome measures (perfectionism, eating disorder symptoms, depression symptoms, anxiety symptoms, and well-being). Analysing each outcome independently of the others will inflate the family-wise error rate and the per-test α will, therefore, need to be corrected to control the inflation. To retain statistical power, Bonferroni adjusted alpha levels will be applied within groups of conceptually related outcomes rather than across the entire

Table 2
Outline of the overcoming perfectionism intervention.

Module	Outline
1. Defining perfectionism and identifying maintaining factors	1. Welcome 2. Quick quiz 3. Unhelpful perfectionism 4. Negative impacts 5. Maintaining factors 6. Next steps
2. Individualised formation of perfectionism	1. Welcome back 2. The first steps 3. Examples 4. My perfectionism cycle 5. Next steps
3. Enhancing motivation to change	1. Welcome back 2. Preparing for change 3. Confidence in your ability 4. Getting started 5. Perfectionism behaviours 6. Next steps
4. Psychoeducation, self-monitoring, and surveys	1. Welcome back 2. Fact or fiction 3. Facts about perfectionism and performance 4. Fact or fiction quiz 5. Surveys 6. Next steps
5. Behavioural experiments and challenging dichotomous thinking	1. Welcome back 2. Behavioural experiments 3. Different behavioural experiments 4. All or nothing thinking 5. Continuum 6. Rules break, guidelines bend 7. Acceptance 8. Next steps
6. Challenging unhelpful thinking styles	1. Welcome back 2. Noticing the negatives 3. Broaden your attention 4. Ignoring the positives 5. Changing thinking styles 6. Morgan's cake 7. Next steps
7. Procrastination, time management, and pleasant events	1. Welcome back 2. Procrastination 3. Procrastination and perfectionism 4. Behavioural experiments 5. Breaking the task down 6. Problem solving 7. Pleasant events 8. Next steps
8. Self-criticism versus self-compassion, self-evaluation, and relapse prevention	1. Welcome back 2. Self-critical voice 3. Identify the critical voice 4. Identify the kind voice 5. How to react 6. Rethinking 7. Rethinking II 8. Freedom 9. Next steps

set of outcomes.

A GLMM will assume a normal probability distribution for the outcome and link it to the fixed effects specified in the model (group, time, group-time interaction) (McCulloch and Neuhaus, 2014). If the outcome does not have a normal distribution, then the parameter estimates of the covariance matrix will be computed with robust statistics. The participants will be randomised into either the intervention group or the control group to maximise the chance they are matched in terms of potentially confounding demographic variables. The groups will be checked for any confounding demographic variables which will be controlled for in all analyses. Participant attrition may impact on whether the groups are matched, therefore potential confounding demographic variables will be identified and statistically controlled in the GLMM analysis. GLMM is less sensitive to participant attrition and does not rely on participants providing data at each assessment point. The GLMM will analyse all data, regardless of whether participants completed the post-intervention assessment and the follow-up assessments. This reduces sampling bias and the need to replace missing data. Reliable change indices (RCI) will be used to determine whether the intervention produces a clinically important change. Absolute reliable changes less than or equal to 1.96 will indicate no change, and absolute reliable changes indices greater than 1.96 will indicate a reliable change between the pre-intervention and post-intervention scores (Jacobson and Truax, 1991). Reliable deterioration of symptomology will be assessed and defined by the presence of a negative clinically reliable change.

3. Discussion

The aim of the present study is to investigate whether guided Internet-delivered cognitive-behavioural therapy for perfectionism is efficacious in reducing perfectionism, symptoms of anxiety, mood, and eating disorders, non-suicidal self-injury, and increasing well-being in adolescents. To our knowledge, this is the first randomised controlled trial to examine the efficacy of guided Internet-delivered cognitive-behavioural therapy for perfectionism in a community sample of adolescents to include males. Furthermore, this study will be the first experimental exploration of the impact of treatment of perfectionism on non-suicidal self-injury thoughts and behaviours. The findings from this study will contribute to the literature on perfectionism and psychopathology in adolescents, as well as develop our understanding of factors related to the onset and continuation of psychological symptoms. The findings may also provide insights into the mechanisms maintaining non-suicidal self-injury. Due to the online nature of the intervention, a limitation of the present study is that no information regarding the clinical diagnoses of participants will be collected. Therefore, it will not be possible to draw conclusions regarding any reductions in the severity of clinical diagnoses. Nonetheless, findings from the present study could help with identifying adolescents at high risk of developing psychological disorders and inform on the utility of a selective prevention approach for reducing symptoms and the future onset of disorders into late adolescence and early adulthood.

Identifying individuals at risk of developing psychological disorders is especially important during adolescence given that many psychological disorders emerge during this time of development (Das et al., 2016). Early intervention and prevention is therefore essential for reducing the burden associated with psychological disorders during adolescence, as well as preventing the progression of psychopathology into adulthood (Cho and Shin, 2013). Research suggests early intervention and prevention has long-lasting effects on overall health and wellbeing and is, therefore, the preferred approach over intervention once clinical diagnoses are present (Cho and Shin, 2013). Although the aim of the present study is not to examine the prevention effects of Internet-delivered cognitive-behavioural therapy for perfectionism, the findings will contribute to the literature regarding the efficacy of early intervention strategies. Furthermore, if the present intervention is efficacious in reducing perfectionism and associated symptoms, this might suggest value in examining the utility of similar programs in preventing future onset of psychological disorders in adolescents. The development of interventions targeting risk and maintaining factors is also important when considering a stepped care approach. By developing interventions that are cost-effective and easily accessible, people identified as at risk of developing psychopathology, or people showing early symptoms, can be given access to such interventions as the first step to prevention and treatment within a stepped care approach.

The findings from the present study will have clinical implications for transdiagnostic approaches to the treatment of psychological disorders. If Internet-delivered cognitive behavioural therapy is efficacious

in reducing symptoms of depression, anxiety, and eating disorders, this might suggest that taking a transdiagnostic approach to treatment and targeting the mechanisms that underly psychological disorders could be beneficial in reducing symptoms across a range of diagnoses in adolescents. Findings may provide support for the transdiagnostic nature of perfectionism in an adolescent population, and promote the need for the development of various effective prevention and intervention programs. While there are a number of studies examining and comparing various levels of support in Internet-delivered interventions for perfectionism in adults (Egan et al., 2014; Zetterberg et al., 2019), there is currently limited evaluation of various levels of support in Internet-delivered interventions for perfectionism in adolescents.

The impact of the coronavirus pandemic may include increased participant distress. Due to lockdown restrictions in Australia, adolescents may experience increased distress in response to limited leisure activities, reduced peer interaction, and overall loss of daily routine and structure (Fegert et al., 2020; Guessoum et al., 2020). This varying impact of coronavirus will be difficult to capture due to different levels of lockdown across the country. The inclusion of a control group in the study design will increase the likelihood that between-group differences observed will highlight intervention effects rather than external factors (including COVID-19-related distress).

To our knowledge, the current study is the first to examine Internet-delivered cognitive behavioural therapy for perfectionism with guidance in a sample of adolescents. The findings from the present study will therefore be informative of the level of support that can be effective in online interventions for perfectionism in this population. If the hypotheses are supported this will suggest that guided Internet-delivered cognitive-behavioural therapy is efficacious in reducing perfectionism and associated symptoms in the longer-term, subsequently enhancing wellbeing in adolescents.

Abbreviations

NSSI	Non-suicidal self-injury
CBT	Cognitive-behavioural therapy
ICBT-P	Internet-delivered CBT for perfectionism
CPQ	Clinical Perfectionism Questionnaire
EDE-Q	Eating Disorder Examination – Questionnaire
RCADS	Revised Child Anxiety and Depression Scale
ISAS	Inventory of Statements about Self-Injury
GHQ-12	12-item General Health Questionnaire
RTQ	Repetitive Thinking Questionnaire
ACS	Attentional Control Scale
CEQ	Credibility/Expectency Questionnaire

Ethics approval and consent to participate

This study was approved by the Curtin University Human Research Ethics Committee (HRE2019-0112) in March 2019. All participants will be required to give consent before they can participate in the study. Participants will receive information on the study conditions, security of data, and their right to withdraw at any time. Upon registration into the trial, participants will be allocated a unique participant ID. Names of participants will not be kept with their data, and the unique participant ID will be used to link their data at each assessment point.

Access to data and availability

Investigators will have access to the data sets. Data will be stored on the Curtin University Research (R:) Drive. The drive follows the standard Curtin Information Technology Services Security and safeguard protocols. The Curtin University Research (R:) Drive is password protected.

Dissemination

Results will be published in peer-reviewed journals and presented at international conferences. De-identified data will be made available on the Open Science Framework, or by request from the corresponding author.

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Authors' contributions

EJJ drafted the manuscript. EJJ, JAH, KET, PAH, SJE, MEB, PMM, and TGM reviewed and revised the manuscript. EJJ, JAH, KET, PAH, SJE, MEB, PMM, and TGM conceived of and designed the study. All authors read, contributed to and approved the final manuscript. EJJ is the study coordinator and a Doctor of Philosophy candidate with Curtin University, Perth, Western Australia, being supervised by TGM, SJE and JAH. TGM and SJE are chief investigators on the project. JAH, KET, and PAH are co-investigators.

Declaration of competing interest

Dr. Sarah Egan receives royalties for the self-help book that the intervention is based on.

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Not applicable.

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