Received: 28 August 2023 | Revised: 21 January 2024 | Accepted: 2 February 2024

DOI: 10.1002/erv.3075

WILEY

RESEARCH ARTICLE

Brief cognitive behavioural therapy for eating disorders symptomatology among a mixed sample of adolescents and young adults in primary care: A non-randomised feasibility and pilot study

Melissa Hart[1,2,3] | **Stephen Hirneth**[2] | **Jane Mendelson**[4] | **Laura Jenkins**[3] | **Kirrilly Pursey**[1,2] | **Glenn Waller**[5]

[1]Food and Nutrition Research Program, Hunter Medical Research Institute, New Lambton, New South Wales, Australia

[2]School of Health Sciences, University of Newcastle, Callaghan, New South Wales, Australia

[3]Hunter New England Mental Health Service, Newcastle, New South Wales, Australia

[4]Hunter New England Central Coast Primary Health Network, Tamworth, New South Wales, Australia

[5]University of Sheffield, Sheffield, UK

Correspondence
Melissa Hart, Mental Health Administration Building, Mater Campus, Edith St, Waratah, NSW, 2298, Australia.
Email: mel.hart@health.nsw.gov.au

Handling Editor: Andreas F. K. Karwautz

Abstract

Objective: Brief and accessible therapies for people with an eating disorder is an important health target. Ten-session cognitive behavioural therapy (CBT-T) is a brief treatment evaluated in people with a non-underweight eating disorder. This study aimed to evaluate the feasibility and preliminary effectiveness of CBT-T for young people in primary care.

Method: This cohort pilot study used group (adolescents vs. young adults) by time (over four time points) Generalised Linear Mixed Model analysis. Participants included 13–25-year-olds attending an early intervention mental health service, receiving 10 sessions of CBT-T. Feasibility was assessed using recruitment, retention and satisfaction. Eating and other pathology measures were administered at baseline, weeks four and 10, and 12-week follow-up.

Results: Of the 63 commencing treatment, 38 completed 10 CBT-T sessions (60%). Most (94%) reported high treatment satisfaction. Significant reductions in eating pathology, depression and stress were found. Age group did not yield differences in CBT-T outcome, with large to very large effect sizes across outcome variables. Anxiety was associated with attrition.

Conclusion: This study provides preliminary support for the use of CBT-T in primary care, across adolescence and early adulthood. Findings require replication in other clinical settings and comparison to other clinical approaches and control populations.

KEYWORDS
CBT-T, eating disorders, feasibility, youth

Highlights

- Brief cognitive behavioural therapy for eating disorders appears feasible and acceptable when working with adolescents and young adults with eating disorders treated in non-specialist services.
- Ten-session cognitive behavioural therapy (CBT-T) was equally effective for adolescents and young adults.
- Baseline levels of anxiety were associated with attrition in CBT-T.

1 | INTRODUCTION

Eating disorders are serious mental illnesses with multiple and often severe complications, requiring timely and appropriate care (Arcelus et al., 2011). Improving detection and access to effective interventions is a priority for children and young people with eating disorders, having the potential to prevent or disrupt the progression of illness, minimise health impacts and reduce the need for more intensive treatment. There is some evidence to support internet-based and guided self-help interventions, both for those with clinically significant eating disorders and those with subthreshold conditions (Fitzsimmons-Craft et al., 2020; Jacobi et al., 2012). Brown et al. (2018) showed that rapid-access individualised interventions for young adults with a relatively recent-onset eating disorder (≤3 years) resulted in earlier access to specialist services, improved treatment uptake and high satisfaction.

It is critical that young cases are identified and receive intervention as early as possible in the clinical system. However, many people with an eating disorder do not or cannot access specialist services in a timely way. This can be due to limitations in timely detection, capacity of specialist services, and geographical location of residence. Therefore, there is an important role for primary care. Primary care refers to health care that people tend to seek first in the community when they have a health problem. Primary care provides an opportunity for detection and provision of brief interventions, increasing the potential breadth of available care options.

Cognitive-behavioural therapy for eating disorders (CBT-ED) has been shown to be effective with adolescents, particularly where there has been poor engagement in or outcomes of family-based treatment for eating disorders (FBT) (Craig et al., 2019; Le Grange et al., 2020). Some forms of CBT-ED are relatively lengthy and resource-heavy, requiring 20–40 sessions (Dalle Grave & Calugi, 2020; Dalle Grave, et al., 2019), leading to calls for investigation of the efficacy of briefer therapies (National Institute for Health and Care Excellence, 2017). Recently, a brief, ten-session form of CBT-ED (CBT-T) has been developed for non-underweight adults with an eating disorder and shown high acceptability (Waller et al., 2019). A recent meta-analysis of CBT-T has shown strong improvements in eating and related pathology (anxiety and depression) in non-underweight people aged 15 years and over (Keegan et al., 2022). However, the effectiveness of brief CBT for younger people with an eating disorder in primary care settings has not been explored. The aim of this pilot study was to evaluate the feasibility and preliminary effectiveness of CBT-T for adolescents (aged 12–17 years) and young adults (aged 18–25 years) with an eating disorder or sub-threshold eating concerns in a primary care setting. Key elements of focus in the pilot study design that were explored for use in future studies included recruitment, retention, patient satisfaction and preliminary effectiveness.

2 | METHODS

2.1 | Design

This study used a non-randomised interactive cohort pilot study design, examining the impact of time point in therapy and age group on treatment outcomes. Measures were taken at baseline, session four and 10 (end of treatment), and 12-week follow-up. Recruitment occurred from December 2018 to September 2020. The study was approved by the Hunter New England Human Research Ethics Committee (reference number 18/11/21/4.11). Given prior outcomes and large effect sizes for CBT-T (Keegan et al., 2022), a starting sample size of 30+ participants was calculated to minimise the risk of Type 2 errors (Power = 80%, alpha = 0.05, assumed attrition = 40%). All participants (and parents, if aged <18 years) provided signed informed consent to participate in the CBT-T intervention.

2.2 | Participants

2.2.1 | Screening

At initial telephone intake (on referral to the service), all patients scoring positive (≥2) on the SCOFF screening

tool (Morgan et al., 1999), or where the intake clinician identified eating concerns, were identified as potential Participants. Intake clinicians were nurses or allied health professionals trained in triage and referral of people with mental illnesses.

2.2.2 | Assessment

Eligibility criteria included people aged 12–25 years referred to a metropolitan early intervention mental health service for any mental health issue, who were identified with eating concerns on assessment, defined by an Eating Disorders Examination Questionnaire (EDE-Q) Global score of ≥2.3, based on Australian community norms (Mond et al., 2004) and/or deemed suitable for CBT-T treatment by a trained clinician following initial assessment. As this was a feasibility study and clinician judgement was deemed important in inclusion criteria, if the assessing clinician judged that people scoring <2.3 on the EDE-Q would benefit from CBT-T treatment, they were also offered the CBT-T intervention. The rationale behind this inclusion criterion is that primary care may be well-suited to provision of interventions for people with less severe symptoms, brief interventions may provide benefit, and the limitations in using a questionnaire such as the EDE-Q as the sole cut-off for therapy. Most participants were referred to the service for mental health issues unrelated to eating. Potential participants also included existing patients of the service where the treating clinician identified eating concerns. Exclusion criteria included patients requiring higher level care (inpatient admission or Child and Adolescent Mental Health Service) or where their other mental health issues were deemed a higher treatment priority by the treating clinician (e.g., psychiatric risk).

Potential participants were referred for assessment for CBT-T with one of the therapists trained in CBT-T. Assessment components included eating disorder cognitions, behaviours and severity, biopsychosocial aspects (mental health, physical, social and functional), participant capacity and willingness to engage with CBT-T treatment and service ability to manage severity or complexity of presentation.

2.3 | Intervention

Trained therapists (a psychologist and a nurse) were employed to provide care for people with disordered eating. They delivered CBT-T under an experienced supervisor to ensure protocol adherence. Initial training followed by monthly supervision was provided to therapists. One therapist had prior experience working in an outpatient eating disorders service while the other had CBT experience in other mental health settings. Both had some experience working with both children and adults. Each participant completed up to 10 weekly individual sessions of 50–60 min each. Follow-up sessions occurred four and 12 weeks after the final session. The intervention (Waller et al., 2019) addresses issues such as engagement, risk, and therapy-interfering behaviours, as well as the following elements: (a) nutritional change and exposure therapy; (b) behavioural experiments to address cognitions about foods; (c) addressing emotional triggers; (d) body image work; and (e) ending therapy well to reduce relapse risk.

2.4 | Measures

Feasibility was assessed in terms of recruitment (30 participants to commence therapy), retention and patient treatment satisfaction. Satisfaction was assessed using a single 'satisfaction with treatment' Likert scale question (1 = very dissatisfied to 5 = very satisfied) at the end of treatment (session 10), with open-ended questions exploring qualitative feedback regarding the service received. Demographic data were collected, including age, gender, height and weight.

Participants completed the following standardised measures to determine preliminary effectiveness. The ***Eating Disorders Examination-Questionnaire (EDE-Q)*** Global score (Fairburn & Beglin, 2008) was the primary outcome measure. Four sub-scales scores and a global score are generated (range 0–6), with higher scores indicating higher symptom levels. EDE-Q sub-scale scores have shown adequate test-retest reliability and good internal consistency in adults (Berg et al., 2012). The EDE-Q has previously been used with adolescents (the younger age group in this study) as well as adults. It has good reliability and validity (e.g., Binford et al., 2005). However, as with adult samples (e.g., Peterson et al., 2007), factor analysis does not support the originally proposed EDE-Q subscales for adolescents (White et al., 2014), suggesting that analyses should focus on the EDE-Q Global scale. In this study, the Global scale had comparably good internal consistency for the group as a whole, for the adolescent group and for young adults (Cronbach's alpha = 0.885, 0.865 and 0.897, respectively). The group's internal consistency (Cronbach's alpha) of the four subscales were all good to strong (Restraint = 0.832; Eating Concern = 0.823; Weight Concern = 0.889; Shape Concern = 0.945). Assistance to clarify EDE-Q question meanings was offered to younger participants completing measures if required. The ***Body***

Satisfaction Scale (BSS) (Slade et al., 1990) was administered as a secondary outcome measure at baseline, session 10 and follow-up. Higher scores indicate lower body satisfaction. Internal consistency has been found to be acceptable across adolescents and adults (Slade et al., 1990). In this study, its internal consistency was strong (Cronbach's alpha = 0.928). The ***Depression, Anxiety and Stress Scale short form (DASS-21)*** (Lovibond & Lovibond, 1995) was used to assess depression, anxiety and stress at all four measurement points. The DASS-21 has good psychometric properties in adults, and can be reliably used as a measure of general distress in adolescents (Shaw et al., 2017). In this group, its scales all had good to strong internal consistency (Cronbach's alpha: Depression = 0.941; Anxiety = 0.835; Stress = 0.865).

Height was measured objectively at baseline, week 10, and 12-week follow-up. Weight was measured by the clinician at each session, using calibrated scales. Percent expected body weight (%EBW) was calculated, based on 100% expected weight for height being the 50th percentile of Body Mass Index (BMI) for patients of <18 years (Centres for Disease Control and Prevention, 2000). Body Mass Index was calculated for those aged 18+ years.

2.5 | Data analysis

SPSS v26 was used for all analyses (IBM Corp, 2019). Descriptive statistics were used for recruitment, retention and patient satisfaction. EDE-Q item scores and sub-scale scores were used to describe symptoms in participants commencing CBT-T. Categorical changes in EDE-Q scores were assessed according to the number of participants completing treatment whose EDE-Q Global score by the end of therapy and at follow-up was ≤2.77, as per previous studies (Fairburn et al., 2009). Binomial logistic regression was used to determine whether there were any predictors of attrition.

Participants in the preliminary effectiveness analysis were divided into two age groups, adolescents (12–17 years) and young adults (18–25 years), to determine whether the impact of CBT-T differed by age. Effectiveness across the two age groups over time was tested using Generalised Linear Mixed Models. Generalised Linear Mixed Model analysis allows repeated measures analysis for main and interaction effects without the issues of intercorrelation between scores across time that are inherent in repeated measures ANOVA models. It also uses all available data without imputation. Group × Time analyses were carried out across all four time points for the EDE-Q and DASS, and for all three points for the BSS. Percent EBW and BMI were analysed across four time points, with no interaction involved. Different 'best-fit' distributions were tested in each case, to map the pattern of changes over time. Effect sizes (Cohen's *d*, adjusted for repeated measures) were calculated for the significant main effects of time, based on intention to treat pairwise comparisons of key time points (start to session four, end of therapy, and 3-month follow-up). Multiple regression analyses were used to determine whether patient age was associated with levels of change on the EDE-Q, BSS and DASS scales across therapy.

Qualitative responses were grouped into prominent themes by one author and checked by a second author. Responses were then rated independently by two authors, who then collaborated to resolve any potential discrepancies. Data were then presented descriptively.

3 | RESULTS

3.1 | Acceptability and feasibility

Of the 90 individuals offered treatment, 64 (71%) consented to the study and 63 (36 adolescents, 27 young adults) commenced treatment, reaching the target of 30 (Figure 1). Of those 63, 25 (40%) left treatment without completion and 38 patients (60%) completed CBT-T (21 adolescents, 17 young adults; 35 females, 3 males) (Figure 1). The age range of participants commencing CBT-T was 13.3–24.8 years (mean = 18.2, SD = 3.42). Among those aged 18+ years, mean BMI was 24.8 (SD = 6.4, range = 16.6–44.8), while among those of <18 years, mean %EBW was 117.8 (SD = 29.3, range = 73%–199%). The mean EDE-Q Global score of those commencing CBT-T was 3.4 (SD = 1.2, range 0–5.5).

Five participants (8%) commencing CBT-T had a BMI <17 kg/m^2. Mean EDE-Q subscale scores for those commencing CBT-T included Restraint 2.5 (range 0–6.0), Eating Concern 2.8 (range 0–5.8), Shape Concern 4.3 (range 0–6.0) and Weight Concern 4.0 (range 0–6.0). More than half (N = 34) of the 63 participants commencing CBT-T reported going eight waking hours or more without eating anything at all to influence shape or weight over the previous 28 days (range once to every day). Thirty participants (48%) reported consuming an unusually large amount of food over the past 28 days (1–56 times) with associated loss of control over the eating episode. Fifteen (24%) had reported self-induced vomiting as a means of controlling weight at least once over the previous 28 days (range 1–40 occasions) and three (5%) reported use of laxatives to control weight or shape (range 2–16 occasions). Twenty-two (35%) reported exercising in a driven or compulsive way over the past 28 days (range 1–28 days).

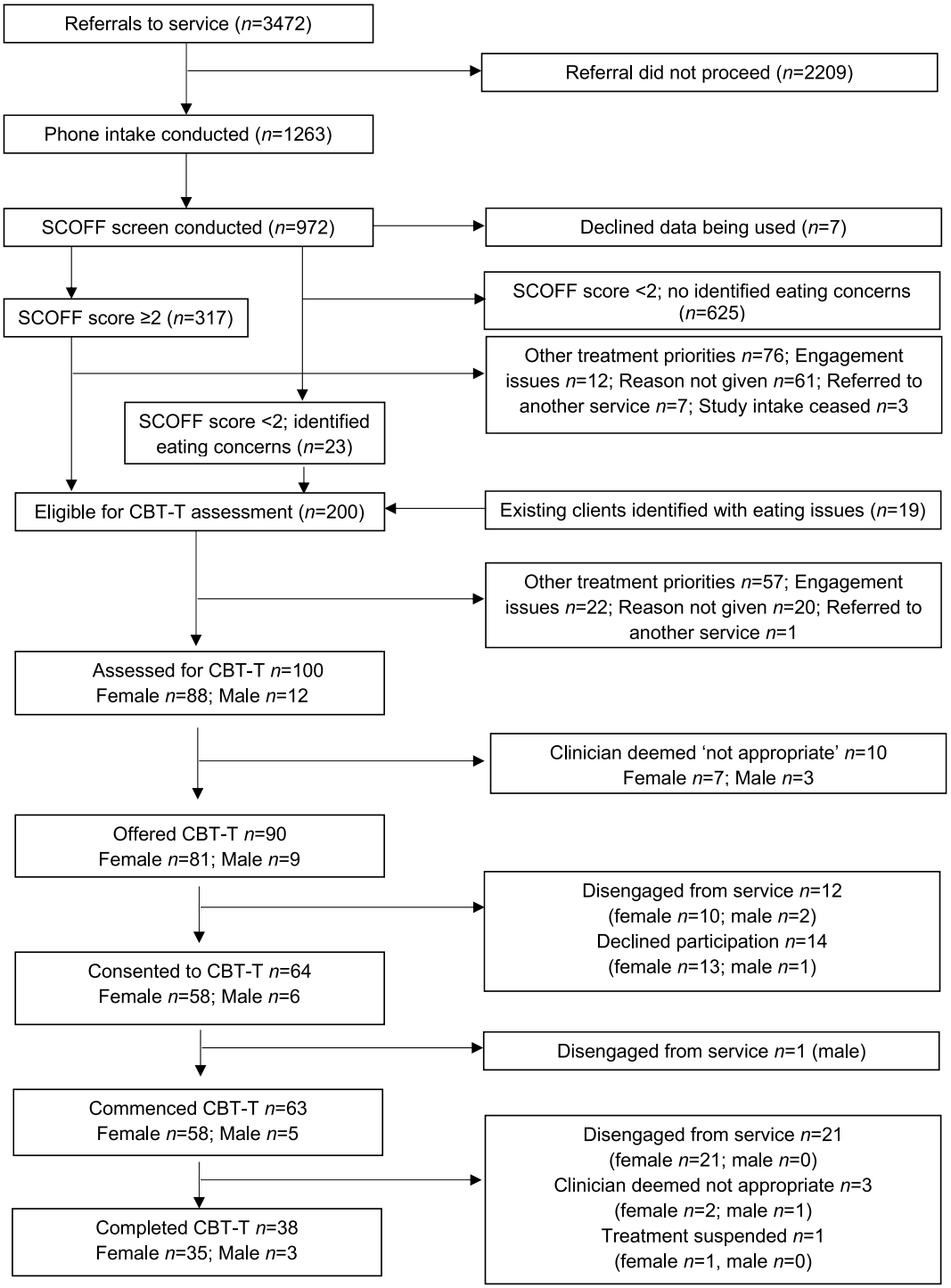

FIGURE 1 Patient recruitment flowchart for the ten-session cognitive behavioural therapy (CBT-T) pilot study.

The screening process showed that 33% ($N = 317$) of patients screened with the SCOFF questionnaire scored ≥2. Twenty-three patients had scored <2, though were identified with eating concerns at intake and therefore referred for assessment. Of these, four out of 12 patients (one-third) completing the EDE-Q scored >2.3 on EDE-Q (study inclusion criteria), 10 were offered CBT-T and three completed therapy.

Patient satisfaction was high, with 94% of people completing treatment reporting they were 'mostly satisfied' or 'very satisfied' with the treatment. Nine prominent themes were generated from qualitative responses. The most frequently cited theme for aspects of the programme participants found useful was 'learning about nutrition and normal eating' ($N = 12$). Other responses relating to the usefulness of the therapy mapped onto the

following themes: 'clinician support, acceptance and feeling understood' ($N = 9$), 'food diaries' ($N = 6$), 'all treatment aspects' ($N = 4$), 'challenging beliefs or behaviours' ($N = 3$), 'handouts/resources' ($N = 3$), 'weighing' ($N = 2$), 'body image work' ($N = 2$), 'work outside of sessions' ($N = 2$) and 'understanding emotional triggers' ($N = 1$). Other responses relating to usefulness of the intervention referenced to the use of visual aids, flexibility with appointment times, and the effects of symptom reduction. However, some of the participants identified negative elements within the same themes including 'food diaries' ($N = 4$), 'body image work' ($N = 2$), 'weighing' ($N = 1$) and 'challenging beliefs or behaviours' ($N = 1$). Two of the four participants who reported food diaries were less useful stated that while they found them useful, they also found completing them to be stressful.

3.2 | Preliminary effectiveness

Supplementary Material S1 shows the mean scores of the patients who dropped out ($N = 25$) and those completing therapy ($N = 38$). Binary logistic regression showed an overall difference between those who did and did not complete treatment (chi-squared = 19.49, $df = 8$, $p = 0.012$). This was due to one specific predictor variable, the DASS anxiety scale ($B = -0.28$, $df = 1$, $p = 0.032$). Patients with higher anxiety levels at the start of treatment were more likely to drop out of therapy. There were no other predictors of attrition.

Table 1 shows the scores of those completing treatment at each of the time points. The scores reduced on all measures and levelled out over the follow-up period.

3.2.1 | Categorical change

Among those who completed CBT-T, 12 (32%) began therapy with a Global EDE-Q score of <2.77, indicating a low starting level of eating pathology. At the end of therapy, the number below this criterion was 26 (68%), indicating a substantial level of 'good outcomes' following CBT-T. At the 3-month follow-up, the proportion below the 2.77 criterion increased to 92% ($N = 35$).

3.2.2 | Dimensional change

Generalised Linear Mixed Model analyses are presented in Table 2, showing the main effects of Time (start of therapy, session 4, end of therapy; and 3-month follow-up), Group (adolescents/young adults), and the interaction of Group × Time for each of the variables. Figure 2 shows the pattern of EDE-Q Global scores for each group. The remainder of figures for patterns of change are included in Supplementary Material B. For all variables aside from the weight measures (%EBW and BMI), a logarithmic relationship was the best fit to the data, showing that change was more pronounced in the early part of therapy, levelled out later in therapy, and showed stability across follow-up. For % EBW and BMI, linear modelling showed the best fit to the data.

Table 2 shows significant reductions over time in eating attitudes (EDE-Q Global), depression and stress (DASS), as can be seen in Figure 2 and in Supplementary Material. However, the reductions in anxiety and body dissatisfaction (Supplementary Material B) were not significant. There were no reliable changes in %EBW or BMI for the two age groups separately, though BMI appeared to increase over time (Supplementary Material B). There were significant differences between age groups, with the adolescents (<18 years) having higher levels of eating pathology and anxiety than the young adults across all stages. Critically, there were no significant interactions of Time × Age group. Therefore, the changes over the course of therapy were similar for the two groups, showing CBT-T to be equally effective across age groups.

As there were no interactions of age by time, the effect sizes for CBT-T are presented for the two groups combined, for variables where there were significant changes across the course or therapy. For EDE-Q Global scores, there were strong effects between the start and end of therapy ($d = 1.522$) and follow-up ($d = 1.497$), and a small-medium effect size between the start of therapy and session four ($d = 0.403$). DASS depression scores showed a similar longer-term pattern (start to end of treatment – $d = 1.115$; start of treatment to follow-up – $d = 0.725$), but limited change from start to session four ($d = 0.265$). That pattern was repeated for the DASS stress score ($d = 1.031$, $d = 0.624$, and $d = 0.196$, respectively). To summarise, the significant time effects reflected generally large effects of the intervention from the beginning to end of therapy, maintained to the end of follow-up.

3.2.3 | Dimensional analysis of the role of age in determining levels of change

Although age was not involved in any interaction terms in the above analyses, it is possible that treating age as categorical meant a loss of statistical power. Therefore, the dimensional relationship between age and outcome was also calculated, using stepwise multiple regressions. To ensure that age's effects were tested over and above

TABLE 1 Mean scores at all four timepoints of those who completed treatment ($N = 38$).

Age group	Measure	Start of therapy M (SD)	Session 4 M (SD)	End of therapy M (SD)	Three-month follow-up M (SD)
13–17 years	EDE-Q global	3.48 (1.22)	2.89 (1.31)	1.40 (0.96)	1.33 (0.84)
	EDE-Q restraint	2.60 (1.85)	1.80 (1.38)	0.72 (0.68)	0.49 (0.54)
	EDE-Q eating	2.92 (1.39)	2.29 (1.34)	1.10 (0.83)	0.82 (0.72)
	EDE-Q weight	4.06 (1.43)	3.56 (1.50)	1.72 (1.15)	2.19 (1.21)
	EDE-Q shape	4.37 (1.40)	3.97 (1.53)	2.25 (1.41)	1.74 (1.13)
	BSS	71.4 (17.7)	-	59.1 (13.6)	53.6 (12.5)
	DASS depression	10.9 (5.00)	9.14 (5.18)	5.00 (3.47)	5.65 (3.65)
	DASS anxiety	9.97 (6.32)	6.86 (4.01)	3.72 (2.91)	4.13 (2.72)
	DASS stress	11.9 (5.43)	9.58 (4.01)	5.89 (3.55)	7.14 (3.47)
18–24 years	EDE-Q global	3.21 (1.28)	2.50 (1.41)	1.22 (0.84)	1.33 (0.87)
	EDE-Q restraint	2.19 (1.38)	1.22 (1.33)	0.52 (0.60)	0.59 (0.53)
	EDE-Q eating	2.57 (1.44)	1.91 (1.28)	0.88 (0.78)	0.71 (0.64)
	EDE-Q weight	3.83 (1.47)	3.20 (1.67)	1.56 (0.99)	2.47 (1.33)
	EDE-Q shape	4.27 (1.59)	3.61 (1.78)	2.06 (1.19)	1.87 (1.17)
	BSS	64.3 (18.2)	-	54.7 (12.7)	52.5 (12.1)
	DASS depression	8.72 (5.99)	9.39 (5.43)	3.87 (2.48)	5.36 (2.96)
	DASS anxiety	7.53 (5.76)	7.13 (4.19)	4.07 (3.81)	4.02 (2.33)
	DASS stress	10.0 (5.22)	9.87 (4.62)	4.93 (3.20)	6.68 (3.01)

Abbreviations: BSS, Body Satisfaction Scale; DASS, Depression Anxiety Stress Scale; EDE-Q, Eating Disorder Examination Questionnaire.

TABLE 2 Fixed effects for main and interaction terms.

	Age group		Time		Time × Group	
Outcome measures	***F* (*df* = 1154)**	***P***	***F* (*df* = 3154)**	***P***	**F (*df* = 2154)**	***P***
Eating disorders examination- global	**4.72**	**0.031**	**2.73**	**0.046**	0.84	0.433
DASS – Depression	3.36	0.069	**3.35**	**0.021**	0.84	0.433
DASS – Anxiety	**4.29**	**0.040**	1.15	0.330	1.44	0.242
DASS – Stress	0.65	0.420	**3.25**	**0.024**	0.87	0.420
	***F* (*df* = 1154)**	***P***	***F* (*df* = 2154)**	***P***	***F* (*df* = 2154)**	***P***
Body satisfaction scale	4.85	0.089	2.95	0.186	1.70	0.186
			***F* (*df* = 3,76)**	***P***		
EBW (adolescents)	-	-	0.154	0.927	-	-
			***F* (*df* = 3,66)**	***P***		
BMI (adults)	-	-	1.41	0.249	-	-

Note: Generalised Linear Mixed Model outcomes, showing fixed effects for main and interaction terms for measures of eating, body satisfaction (three time points only), depression, anxiety and stress (Time x Age group) and showing main effects for %EBW (adolescents only) and young adults (BMI only). Significant effects are shown in bold.

Abbreviations: BMI, Body Mass Index; BSS, Body Satisfaction Scale; DASS, Depression Anxiety Stress Scale; EBW, expected body weight; EDE-Q, Eating Disorder Examination Questionnaire.

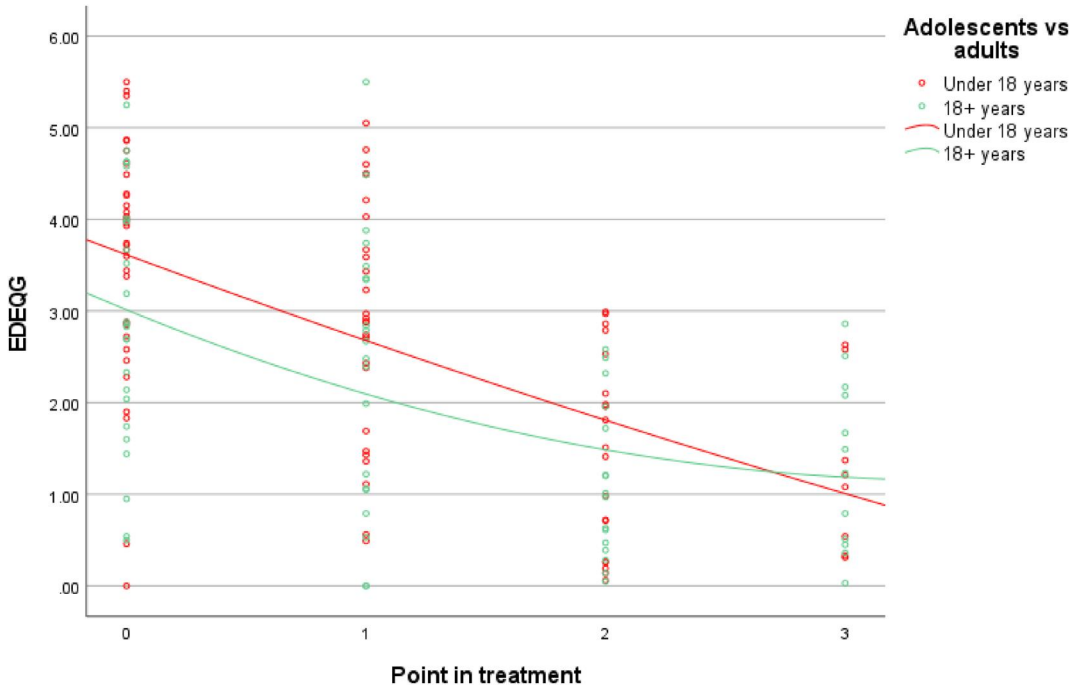

FIGURE 2 Changes in Eating Disorders Examination Questionnaire (EDE-Q) Global score across time. Generalised Linear Mixed Model outcomes, showing changes in the EDE-Q Global score across time for adolescents and young adults, showing best fit (logN) for each group across the start of treatment (Point 0), session 4 (Point 1), end of treatment (Point 2) and 3-month follow-up (Point 3).

any continuity of characteristics over time, the relationship between age and the end of therapy pathology scores was calculated, once the initial scores had been used as predictors.

For the EDE-Q Global score, the regression showed an overall association ($F = 14.5$, $P < 0.001$). Once the initial score was accounted for ($t = 4.64$, Beta = 0.103, $P < 0.001$), age did impact on the end of therapy score ($t = 2.47$, Beta = −0.055, $P = 0.013$). The negative Beta value shows that younger individuals responded more strongly to CBT-T than the older individuals in this overall sample (consistent with the greater change for the younger group, shown in Figure 2). The same pattern was found for: BSS scores (overall association: $F = 72.5$, $P < 0.001$; effect of initial BSS score: $t = 10.6$, Beta = 0.229, $P < 0.001$; effect of age: $t = 5.00$, Beta = −0.108, $P < 0.001$); DASS Depression scores (overall association: $F = 145.1$, $P < 0.001$; effect of initial DASS Depression score: $t = 15.9$, Beta = 0.514, $P < 0.001$; effect of age: $t = 3.60$, Beta = −0.117, $P < 0.001$); and DASS Stress scores (overall association: $F = 141.0$, $P < 0.001$; effect of initial DASS Stress score: $t = 15.4$, Beta = 0.499, $P < 0.001$; effect of age: $t = 4.76$, Beta = −0.154, $P < 0.001$). In contrast, the effect of age was positive for the DASS Anxiety score (overall association: $F = 124.8$, $P < 0.001$; effect of initial DASS Anxiety score: $t = 15.7$, Beta = 0.528, $P < 0.001$; effect of age: $t = 2.14$, Beta = 0.072, $P = 0.032$). To summarise, while there were consistent pre-post treatment effects of CBT-T within this age range, younger patients tended to show higher levels of improvement in terms of eating attitudes, body image, depression and stress. In contrast, older patients showed greater improvement in terms of anxiety.

4 | DISCUSSION

This pilot study assessed the feasibility and preliminary effectiveness of a brief intervention (CBT-T) for people with eating disorders and subthreshold presentations referred to a primary care setting. Individuals with a very low weight were not part of the sample, though would typically have been referred directly to a specialist service. The age range of the sample represents a critical period (adolescence and young adulthood) of risk of onset and of developing a more significant eating disorder (e.g., Brown et al., 2018). It is essential that eating disorders and subthreshold cases are detected and people identified have rapid access to effective interventions. The brevity of CBT-T relative to other forms of evidence-based CBT-ED makes it suitable in services where access to specialist interventions is limited by long waiting lists. This study found that CBT-T shows feasibility and

preliminary effectiveness in an early intervention mental health primary care setting.

Considering recruitment and attrition, the intervention had a level of feasibility and acceptability similar to those in other studies of CBT-T in adults (e.g., Keegan et al., 2022). Ratings of satisfaction with the intervention were high. Preliminary effectiveness of the intervention was demonstrated by clinical outcomes (eating pathology, depression and stress) that were comparable to those from existing studies of adults with moderate to severe eating disorders, with similar effect sizes (Keegan et al., 2022). There were also good levels of categorical change, from 32% below the EDE-Q 2.77 cut-off at the start of therapy to 92% at the 3-month follow-up. There was no interaction of age group and treatment outcome over time, indicating that CBT-T was as effective overall for adolescents as it was for young adults. However, dimensional analyses showed that younger individuals within this age range actually did slightly better than the older individuals on most measures (though the reverse was true for anxiety). Overall, these findings indicate that CBT-T has potential for use with younger people with eating disorders in primary care settings. Preliminary effectiveness among younger people is particularly important, as it adds to the evidence that CBT-ED can be effective for young people, particularly where family-based treatment is not effective or available (Craig et al., 2019; Le Grange et al., 2020). Body Mass Index in adults increased over the course of the intervention and further exploration is warranted in future studies. 'Learning about nutrition and normal eating' was the most frequently cited aspect of the intervention participants found useful, followed by 'clinician support, acceptance and feeling understood'. Both require consideration in future treatment of people with disordered eating symptoms.

This pilot study has several limitations that require addressing in further research. The sample size was small, consisting predominantly of females and with a broad range of eating disorder presentations, including sub-threshold eating concerns. Baseline level of symptoms were not high, hence detecting clinically and statistically significant change was more challenging. Diagnosis was not determined formally, and a range of diagnostic subgroups could exist, with different outcome profiles. Duration of symptoms may also affect outcome and requires exploration. The DASS-21 is also typically recommended for use in people ≥14 years and was used in ≥13 years in this study. There was also only one intervention explored. Although the protocol was subject to ethical approval, the study was not pre-registered, as that was not required at the time that the study was conducted, and that should be done in future research of this sort.

The research needs to be repeated with a larger number of people with different severities and in different contexts (e.g., other clinical settings, non-metropolitan services, different cultural backgrounds, males, and non-binary gender identities). This would allow exploration of moderators and mediators of CBT-T effectiveness. Randomised controlled trials are needed to compare CBT-T directly to other approaches, including treatment as usual, and to confirm that findings do not reflect spontaneous recovery. Higher anxiety at the start of treatment predicted attrition, suggesting that such cases might require clinicians to work with anxiety initially. The impact of family involvement (e.g., information on CBT-T) on acceptability and effectiveness of CBT-T with younger participants could also be explored. Qualitative research would be beneficial in further exploring satisfaction and barriers to participation in CBT-T. The benefits of screening and assessment as a means of determining suitability for brief versus other interventions also requires investigation.

To conclude, this study has shown that CBT-T has the potential for use with younger people, improving early treatment access across clinical settings. This approach is in keeping with recommendations that shorter therapies should be explored to reduce costs and allow waiting lists to be managed more effectively (National Institute for Health and Care Excellence, 2017). This intervention has the potential to be utilised in primary care, reducing the risk of disordered eating behaviours progressing to a more pathological, longer-lasting pattern.

ACKNOWLEDGEMENTS

Participants and their families contributed a generous amount of their time to participate in the study. Staff of the Primary Health Network and Headspace contributed their valuable time and expertise to allow the successful conduct of the project.

Open access publishing facilitated by The University of Newcastle, as part of the Wiley - The University of Newcastle agreement via the Council of Australian University Librarians.

CONFLICT OF INTEREST STATEMENT

GW is an author of the manual used and receives royalties from Routledge. The other authors have no conflict of interest to declare.

PATIENT CONSENT STATEMENT

All participants (and parents, if aged <18 years) provided signed informed consent to participate in the CBT-T intervention study.

CLINICAL TRIAL REGISTRATION

N/A.

DATA AVAILABILITY STATEMENT

Data generated from the current study are available from the corresponding author on reasonable request.

ORCID

Kirrilly Pursey https://orcid.org/0000-0001-7615-7280
Glenn Waller https://orcid.org/0000-0001-7794-9546

REFERENCES

Arcelus, J., Mitchell, A. J., Wales, J., & Nielsen, S. (2011). Mortality rates in patients with anorexia nervosa and other eating disorders: A meta-analysis of 36 studies. *Archives of General Psychiatry*, *68*(7), 724–731. https://doi.org/10.1001/archgenpsychiatry.2011.74

Berg, K. C., Peterson, C. B., Frazier, P., & Crow, S. J. (2012). Psychometric evaluation of the eating disorder examination and eating disorder examination-questionnaire: A systematic review of the literature. *International Journal of Eating Disorders*, *45*(3), 428–438. Epub 2011 Jul 8. PMID: 21744375; PMCID: PMC3668855. https://doi.org/10.1002/eat.20931

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*(1), 44–49. https://doi.org/10.1002/eat.20062

Brown, A., McClelland, J., Boysen, E., Mountford, V., Glennon, D., & Schmidt, U. (2018). The FREED project (first episode and rapid early intervention in eating disorders): Service model, feasibility and acceptability. *Early Intervention in Psychiatry*, *12*(2), 250–257. https://doi.org/10.1111/eip.12382

Centres for Disease Control and Prevention. (2000). Clinical growth charts. Retrieved from http://www.cdc.gov/growthcharts/clinical_charts.htm

Craig, M., Waine, J., Wilson, S., & Waller, G. (2019). Optimizing treatment outcomes in adolescents with eating disorders: The potential role of cognitive behavioral therapy. *International Journal of Eating Disorders*, *52*(5), 538–542. https://doi.org/10.1002/eat.23067

Dalle Grave, R., & Calugi, S. (2020). *Cognitive behavior therapy for adolescents with eating disorders*. Guilford.

Dalle Grave, R., Eckhardt, S., Calugi, S., & Le Grange, D. (2019). A conceptual comparison of family-based treatment and enhanced cognitive behavior therapy in the treatment of adolescents with eating disorders. *Journal of Eating Disorders*, *7*(1), 42. https://doi.org/10.1186/s40337-019-0275-x

Fairburn, C. G., & Beglin, S. (2008). Appendix B: Eating disorder examination questionnaire (EDE-Q6.0). In C. G. Fairburn (Ed.), *Cognitive behavior therapy and eating disorders*. Guilford.

Fairburn, C. G., Cooper, Z., Doll, H. A. O. C., MarianneBohn, E. K., Hawker, D. M., Wales, J. A., & Palmer, R. L. (2009). Transdiagnostic cognitive-behavioral therapy for patients with eating disorders: A two-site trial with 60-week follow-up. *American Journal of Psychiatry*, *166*(3), 311–319. https://doi.org/10.1176/appi.ajp.2008.08040608

Fitzsimmons-Craft, E. E., Taylor, C. B., Graham, A. K., Sadeh-Sharvit, S., Balantekin, K. N., Eichen, D. M., Monterubio, G. E., Goel, N. J., Flatt, R. E., Karam, A. M., Firebaugh, M. L., Jacobi, C., Jo, B., Trockel, M. T., & Wilfley, D. E. (2020). Effectiveness of a digital cognitive behavior therapy-guided self-help intervention for eating disorders in college women: A cluster randomized clinical trial. *JAMA Network Open*, *3*(8), e2015633. https://doi.org/10.1001/jamanetworkopen.2020.15633

IBM Corp. (2019). *IBM SPSS statistics for windows, version 26.0*. IBM Corp.

Jacobi, C., Völker, U., Trockel, M. T., & Taylor, C. B. (2012). Effects of an internet-based intervention for subthreshold eating disorders: A randomized controlled trial. *Behaviour Research and Therapy*, *50*(2), 93–99. https://doi.org/10.1016/j.brat.2011.09.013

Keegan, E., Waller, G., & Wade, T. D. (2022). A systematic review and meta-analysis of a 10-session cognitive behaviour therapy for non-underweight eating disorders. *Clinical Psychologist*, *26*(3), 241–254. https://doi.org/10.1080/13284207.2022.2075257

Le Grange, D., Eckhardt, S., Dalle Grave, R., Crosby, R. D., Peterson, C. B., Keery, H., & Martell, C. (2020). Enhanced cognitive-behavior therapy and family-based treatment for adolescents with an eating disorder: A non-randomised effectiveness trial. *Psychological Medicine*, 1–11. https://doi.org/10.1017/S0033291720004407

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behaviour Research and Therapy*, *33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-U

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. (2004). Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behaviour Research and Therapy*, *42*(5), 551–567. https://doi.org/10.1016/S0005-7967(03)00161-X

Morgan, J. F., Reid, F., & Lacey, J. H. (1999). The SCOFF questionnaire: Assessment of a new screening tool for eating disorders. *British Medical Journal*, *319*(7223), 1467–1468. https://doi.org/10.1136/bmj.319.7223.1467

National Institute for Health and Care Excellence. (2017). Eating disorders: Recognition and treatment (NG69). London Retrieved from https://www.nice.org.uk/guidance/ng69

Peterson, C. B., Crosby, R. D., Wonderlich, S. A., Joiner, T., Crow, S. J., Mitchell, J. E., Bardone-Cone, A. M., Klein, M., & le Grange, D. (2007). Psychometric properties of the eating disorder examination-questionnaire: Factor structure and internal consistency. *International Journal of Eating Disorders*, *40*(4), 386–389. https://doi.org/10.1002/eat.20373

Shaw, T., Campbell, M. A., Runions, K. C., & Zubrick, S. R. (2017). Properties of the DASS-21 in an Australian community adolescent population. *Journal of Clinical Psychology*, *73*(7), 879–892. https://doi.org/10.1002/jclp.22376

Slade, P. D., Dewey, M. E., Newton, D. B., Brodie, D., & Kiemle, G. (1990). Development and preliminary validation of the body satisfaction scale (BSS). *Psychology and Health*, *4*(3), 213–220. https://doi.org/10.1080/08870449008400391

Waller, G., Turner, H. M., Tatham, M., Mountford, V. A., & Wade, T. D. (2019). *Brief cognitive behavioural therapy for non-underweight patients: CBT-T for eating disorders*. Routledge.

White, H. J., Haycraft, E., Goodwin, H., & Meyer, C. (2014). Eating disorder examination questionnaire: Factor structure for adolescent girls and boys. *International Journal of Eating Disorders*, *47*(1), 99–104. https://doi.org/10.1002/eat.22199

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Hart, M., Hirneth, S., Mendelson, J., Jenkins, L., Pursey, K., & Waller, G. (2024). Brief cognitive behavioural therapy for eating disorders symptomatology among a mixed sample of adolescents and young adults in primary care: a non-randomised feasibility and pilot study. *European Eating Disorders Review*, 1–11. https://doi.org/10.1002/erv.3075