Delivering CBT-E In an Online Group Format: A Pilot Study in a Child and Adolescent Eating Disorder Service

Layla Hamadi (layla.hamadi@oxfordhealth.nhs.uk)
Oxford Health NHS Foundation Trust https://orcid.org/0000-0003-0929-5258
Reece Hilson
Oxford Health NHS Foundation Trust, Oxford, Oxfordshire, United Kingdom
Amy Lunn
Oxford Health NHS Foundation Trust, Oxford, Oxfordshire, United Kingdom
Emily Ralph
Oxford Health NHS Foundation Trust, Oxford, Oxfordshire, United Kingdom
Evangeline Rodrigues
Oxford Health NHS Foundation Trust, Oxford, Oxfordshire, United Kingdom
Rabeeah Sohail
Oxford Health NHS Foundation Trust, Oxford, Oxfordshire, United Kingdom

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Abstract

Background: The increased prevalence of eating disorders during the COVID-19 pandemic has placed services for children and adolescents under immense pressure. The high number of people at medical risk has led to longer waiting lists for psychological support for those who are physically stable. A pilot study was conducted to evaluate the feasibility and effectiveness of providing group enhanced cognitive behavioral therapy for eating disorders (CBT-E), in a virtual setting, as a way of increasing the provision of evidence-based treatment during the pandemic.

Method: Clinicians in a child and adolescent eating disorder service were invited to refer patients to take part in a six-session course of therapy comprising the CBT-E Stage Three Body Image module. Primary outcomes were acceptance rates, completion rates, qualitative feedback and quantitative data from routine measures of eating disorder psychopathology and psychosocial impairment.

Results: From 22 eligible referrals, 12 participants accepted and enrolled in therapy. Eight completed all six sessions. Qualitative feedback was positive. Both the content and group nature of the intervention were described as helpful. There was an improvement in all scores on the psychometric tests.

Conclusions: This pilot study demonstrated that online group CBT-E was a feasible method of providing psychological therapy within the service. A larger trial is recommended to robustly test the effectiveness of the intervention compared to one-to-one in-person CBT-E, and to test whether other modules of the CBT-E protocol can be similarly delivered in this population.

Trial registration: This study was pre-registered and approved as a clinical service evaluation by the Oxford Health NHS Foundation Trust, United Kingdom

Plain English Summary

The number of young people with eating disorders has increased substantially since the start of the COVID-19 pandemic. With high pressure on services and restrictions on providing in-person treatment, this study explored whether an evidence-based therapy for eating disorders could be delivered online and in small groups. The treatment was six sessions of enhanced cognitive behavioral therapy (CBT-E) which focused on body image. Twelve people started the group therapy, and eight completed all six sessions. Worries about eating, shape and weight all reduced by the end of the treatment, and participants described finding the therapy and the group setting helpful. The results suggest that providing online group CBT-E was a helpful and appropriate treatment, but a larger trial with more participants is needed to confirm exactly how effective this is.

Background

Since the COVID-19 pandemic began, rates of eating disorders among children and adolescents have increased [1, 2] and publicly funded services in the UK have come under immense pressure [3]. An increasing number of urgent new assessments and young people at high medical risk has led to

increased waiting times for those young people who need a psychological intervention but are medically stable. It is therefore important to investigate whether the delivery of interventions can be modified to reduce this wait [4]. One option for increasing the provision of psychological therapy to children and adolescents is to offer treatment in a group setting.

Enhanced cognitive behavioural therapy (CBT-E; [5]) is an evidence-based therapy for eating disorders. It was designed to be delivered on a one-to-one basis by a clinician and has been adapted for children and adolescents [6]. It treats a range of eating disorder psychopathologies and, therefore, is appropriate for treating all eating disorders within the transdiagnostic model [7]. The core CBT-E protocol, for people who are not underweight, is 20 sessions in length, and divided into several discrete modules.

In the transdiagnostic model, concerns about shape and weight are considered to be the core psychopathology of an eating disorder [7]. While the literature on group treatment is limited, positive outcomes have been reported in the delivery of in-person interventions to improve body image in adults with subclinical body image worries [8, 9], and those with diagnosed eating disorders [10].

Several studies have specifically explored the delivery of CBT-E in a group setting, however all have taken place in an adult population and were held in person. Chen et al [11] compared group and individual CBT for adults with a diagnosis of bulimia nervosa. The majority (73.3%) of participants completed treatment and outcomes were similar in both arms of the trial. Dalle Grave et al [12] reported on the provision of group CBT-E and made recommendations based on these experiences but did not provide quantitative outcome data. They suggested that both the content and home tasks in group sessions should remain the same as with individual CBT-E, but that sessions should last 90 minutes, rather than 50. They explain that a key barrier to group therapy provision was that it was very difficult to arrange, because of patient availability. This implies significant challenges for longer-term group therapy, where all members of a group would need to be able to commit to every session over an extended period of time.

Wade, Byrne, and Allen [13] conducted a randomised control trial evaluating the effectiveness of group CBT-E for eating disorders by comparing outcomes of an immediate start with an eight-week delayed-start wait-list group. The first eight weeks of group CBT-E led to a reduction of eating disorder psychopathology, whereas no significant reduction was observed across the eight weeks for those randomised to the waiting list. The paper reported that 70% of those who entered the trial completed treatment (attending an average of 18 sessions out of the scheduled 20), and 67.9% of those completers achieved a good outcome, concluding that a group version of the treatment was a valid method of reducing eating disorder psychopathology.

During the COVID-19 pandemic, measures to combat the spread of the virus have meant that in many locations, in-person therapy has not been possible. Online group therapy may have value even outside of a pandemic setting as distance and access to services have long been recognised as barriers to psychological therapy [14]. Therefore, one positive effect of the pandemic response is that interest in, and availability of, virtual treatment has increased.

Within the field of eating disorders, several services have reported on their move to online working, mostly within high-intensity treatment. Plumley, Kristensen, and Jenkins [15] described the online continuation of an adult eating disorders day programme, noting that emotive topics could be challenging to manage in a virtual setting and suggesting that a useful strategy is to set an activity that can be completed individually and then reflected on as a group.

Another pilot study demonstrated feasibility of delivering a virtual intensive outpatient program for adults, shown through recruitment and patient adherence. Responses from participants and clinical outcome data suggested it was an acceptable intervention for patients [16]. An example from child and adolescent services examined the experiences of young people who attended an intensive day-treatment programme for eating disorders online [17]. Although a high proportion (71%) rated each component of treatment as either somewhat or very helpful, the paper noted that therapeutic alliance was affected, and several technical problems were reported.

In summary, there is some evidence that in-person group provision of CBT-E in adults is effective, and emerging evidence that it is possible to deliver eating disorder treatments online. To the authors' knowledge, there are no trials evaluating group CBT-E for children and adolescents, either in person or online. To address the pressure on services, a pilot study was conducted to test whether it was feasible, acceptable and effective to deliver CBT-E in a group setting to children and adolescents in an eating disorder service. To manage the restrictions of COVID-19, the intervention was delivered virtually.

While feasibility studies are limited in the conclusions that can be drawn, they provide a time- and cost-effective means of testing whether an intervention could work [4]. Out of a clinical need, this study evaluated the group and the virtual nature of the intervention simultaneously. As the logistical challenges of arranging longer-term therapy in a group setting have been identified, the study selected a module from CBT-E to pilot. The Body Image module from the CBT-E protocol was chosen because thoughts and behaviours related to body image concerns were the most common presenting problem in patients on the waiting list. This pilot was conducted with a view to determining whether an online group approach could be used more widely by the service.

Method

This study was approved as a clinical service evaluation by the Oxford Health NHS Foundation Trust.

Participants

The service is a regional mental health service in the south-east of England offering assessment and treatment of people with eating disorders who are under the age of 18. All clinicians within the service were invited to refer patients who were: currently open to the eating disorder service; medically stable; managing a meal plan; and waiting for psychological therapy due (or partly due) to body image concerns. Referrals were screened by the lead author, and those who were eligible were invited to take part in the six-

session intervention. Based on patient feedback conducted in advance, it was agreed the maximum number of participants in any group would be eight.

Intervention

Detailed slides were created on Microsoft PowerPoint for all six sessions, mirroring the CBT-E Stage Three Body Image module from Fairburn's [5] manual. This covered the extended formulation of overevaluation of shape and weight, and the roles that body checking, body avoidance, comparison making and "feeling fat" play in maintaining it. As with individual CBT-E, each session provided psychoeducation, set a home task and reviewed the previous week's home task. Tasks included completing self-monitoring forms and conducting behavioral experiments, as outlined in the protocol. Each week during the sessions there were questions and activities for the participants to consider or complete individually, which were then fed back or reflected on as a group. When participants were asked questions during sessions, they had options of answering verbally or via the chat function.

Each session was delivered in Microsoft Teams and two groups ran concurrently, each containing the same six sessions. These were facilitated by the same qualified clinical psychologist each time, who was experienced in delivering CBT-E, and supported by one of five assistant psychologists, who took turns to co-facilitate. Therapy sessions took place weekly with a two-hour slot allocated for each. The first 30 minutes was reserved to welcome participants and address technical issues. All participants and facilitators were required to have their cameras on during sessions, except when completing individual tasks. At the end of the session, participants booked a follow-up call with an assistant psychologist.

During this weekly 15-minute call with an assistant psychologist, participants were asked about the preceding session to check their understanding of the topic. They reviewed the home task and participants were invited to ask questions or provide feedback. Written records of home tasks were to be sent to the facilitator, via email, 24 hours prior to the next session. This was to allow the intervention slides to be updated and personalized, to ensure the experiences of all group members were acknowledged and covered.

An *a priori* decision was made that participants who missed a session were not to continue with the intervention. This was due to the nature of CBT-E where sessions, psychoeducation and home tasks all build on those of the preceding session.

Outcomes

Feasibility was evaluated by the demand, practicality, and ability to implement the intervention. This was tested in several ways. The demand was measured by reviewing the number of appropriate referrals and the acceptance rate by those invited to take part. The service also monitored technical and admin issues which affected the delivery of the intervention.

Acceptability was evaluated by how participants reacted to the intervention. It was primarily measured by completion rates and qualitative feedback. The feedback was sought in writing via email at the end of the

intervention and participants were invited to comment on any aspect of the process and to make recommendations for the future. Providing feedback was optional and was done via an e-mail to the assistant psychologist supporting the final session. Any verbal feedback from participants during group sessions and follow up calls was also recorded.

Effectiveness of the intervention was measured using scores from two routinely used outcome questionnaires (see below). Those who took part in the therapy filled in the following measures before treatment began and at the end of treatment. In line with other pilot studies, descriptive statistics were used to present the data.

The Eating Disorder Examination for Adolescents (EDE-A; [18])

The EDE-A is the adolescent version of the Eating Disorder Examination Questionnaire (EDE-Q; [19]). It is a 36-item self-report questionnaire using a 7-point rating scale, with a total raw score range of 0-138, where higher scores indicate more problematic eating behaviors and attitudes. It measures four subscales of eating disorder psychopathology (Restraint, Eating Concern, Shape Concern, and Weight Concern) and a global score. It differs from the EDE-Q in focusing on the past 14, rather than 28, days and using simplified language. It is used as standard in child and adolescent eating disorder services in the United Kingdom, however limited research on the adolescent version means there is less evidence for its psychometric properties [20] compared to the EDE-Q.

The Clinical Impairment Assessment (CIA; [21])

The CIA is a 16-item self-report questionnaire testing the severity of psychosocial impairment due to an eating disorder. Questions cover a range of different areas of life and each item is rated on a four-point Likert scale. Scores range from 0 to 48, with higher scores indicating higher impairment. The clinical cutoff score is 16 and it has demonstrated satisfactory psychometric properties among a sample of young adult women [22].

Results

Participant characteristics

Twenty-five referrals were made, of whom 22 were accepted as eligible. The lead author contacted all eligible referrals via email and/or telephone to discuss the intervention, provide an information sheet, and ask whether they would like to take part. Four could not be reached or did not reply within the time limit. Six declined for a combination of reasons including: changing their mind about wanting psychological therapy (n=4), not being able to commit to the scheduled appointments (n=1) and not wanting a group intervention (n=1). Twelve participants accepted and confirmed they could commit to all the scheduled sessions. Eight of the 12 participants completed all six sessions. See Figure 1 for a flow chart of the recruitment process.

All 12 participants were female and white British, and the average age was 15.79 years (range, 4.5; standard deviation 1.47). Seven (58%) had a diagnosis of anorexia nervosa and four (33%) had a diagnosis of atypical anorexia nervosa, based on criteria from the diagnostic and statistical manual of mental disorders [23]. One participant (8%) did not have a formal diagnosis. The mean average weight for height was 93.54% (range, 32.81; standard deviation 9.43). The mean average time that participants had spent in the service was 6.75 months, but this varied significantly (range, 43, standard deviation 11.66)

Clinical outcome data

The end-of-treatment questionnaires were filled in by all eight completers. There was a reduction in: the EDE-A global score; each of the EDE-A subscales; and the CIA scores (see Table 1). This indicated a reduction in eating disorder psychopathology and psychosocial impairment. Figure 2 shows the changes in both individual and mean scores.

Table 1 Outcome data from routine outcome measures

	BL Mean (Range) *SD*	**EOT** Mean (Range) *SD*
N = 8		
EDE-A Restraint	2.83 (5) *1.69*	2.17 (2.8) *1.21*
EDE-A Eating Concern	3.48 (2.6) *0.96*	3.03 (2.8) *1.04*
EDE-A Weight Concern	4.5 (2.4) *0.79*	3.85 (4) *1.36*
EDE-A Shape Concern	5.03 (1.38) *0.51*	4.61 (2.63) *1.05*
EDE-A Global	3.96 (1.99) *0.69*	3.42 (2.53) *0.96*
CIA	35.62 (21) *6.82*	28.5 (23) *7.25*

Abbreviations: BL = Baseline; CIA = Clinical Impairment Assessment; EDE-A = Adolescent version of the Eating Disorder Examination Questionnaire, EOT = End of Treatment, N = Number of participants, R = Range; SD = Standard deviation

Qualitative feedback

All eight completers sent written qualitative feedback. The following is a summary of the topics discussed.

Reflections on the intervention

Seven of the eight participants described finding the content very helpful. The eighth described therapy as a useful refresher, having previously covered some of the topics while in the service. There were a range of reasons given for why treatment had been helpful, including the permission to talk about body image

difficulties and the psychoeducation about how certain behaviors are both caused, and maintained by, an eating disorder.

All participants who commented on the self-monitoring home tasks and behavioral experiments described them as productive and helpful. However, some people were surprised to discover how frequently they engaged in behaviors such as body checking, which made one person feel sad and another anxious. Two people said that self-monitoring increased their preoccupation with shape and weight in the short term.

Time spent in session as a group reflecting on the home tasks was described as helpful and reassuring. Two people noted that doing this showed that their home efforts and written work were valued and useful.

Four people said the course made them more confident. Two said it had helped them understand why making changes was important. Two commented that the information contained in the PowerPoint slides was useful and accessible.

Group format

When being invited to take part in this intervention, several people reported being anxious that it was taking part in a group setting. In the written qualitative feedback, however, five participants spoke specifically about finding the group nature of the course helpful. It was found by most to be validating and reassuring, with specific comments about it helping people realize that they are not alone in their struggles and that others have similar worries and engage in the same behaviors.

During the intervention, the issue of comparison between group members was raised and addressed. Two participants noted in their written feedback that this was an ongoing but manageable concern. In feedback in individual calls, two other people said they had worried this would be a problem, but had found the environment supportive, rather than competitive.

Online format

When being invited to take part in this intervention, several young people reported being anxious about the prospect of having their cameras on for therapy. This was because they would be able to see themselves, and others would be able to see them, in a way that is not possible in in-person therapy. However, there was positive feedback about this in follow-up calls, with several people saying it made the group feel more interactive. There was no further negative feedback on having cameras on once the intervention began. In the written qualitative feedback, one young person commented that although virtual treatment was suboptimal, there was a positive side because they could complete tasks alone which made them feel less judged.

Technology, admin and resources

Overall, there were few technological difficulties, however on one occasion, a participant did not have access to a working device with which to join the session. The initial 30 minutes of the session, which was allocated to address technical issues, worked well on several occasions, as people were able to identify and fix connection and computer difficulties, preventing them from missing a session. However, one person fed back that 30-minutes was too long to wait.

The majority of participants attended on time. Additional time and resources were needed where people did not attend sessions on time. Facilitators emailed and telephoned participants, meaning other young people were waiting. Chasing home tasks also took up time. Overall, 40.7% of written home tasks were sent in on time with no prompts; 25.9% were returned late, after one or more prompts, and 33.3% were not sent in. When home tasks were returned, they were of a very high quality. One person gave feedback that it would be helpful for the service to send a reminder to everyone about sending in the home tasks, the day before they were due.

One young person recommended providing a way to answer questions or make comments anonymously, particularly at the beginning of the course due to the challenges of speaking about sensitive topics to people they did not yet know. The available methods (speaking or using the chat function) did not provide anonymity.

Discussion

Due to clinical need and the restrictions of COVID-19, this pilot assessed whether it was feasible and effective to provide group CBT-E, in an online format, to children and adolescents in an eating disorder service. Results were encouraging, with the majority of eligible referrals beginning therapy, and two thirds of the participants attending every session.

The scale of the current clinical intervention was insufficient to robustly evaluate its efficacy. However, the reduction seen across all scores on the measures of eating disorder psychopathology and psychosocial functioning was consistent with Wade's [13] research which found positive results for in-person, group CBT-E in adults. The adults who completed the 20-session CBT-E protocol in Wade's [13] research showed a reduction in mean EDE-Q global score from 4.28 at baseline to 2.32 at end of treatment. In this pilot, the mean EDE-A global score reduced from 3.96 to 3.42 over the six sessions. It is difficult to directly compare the scores due to the difference in length of treatment.

A larger study to determine effectiveness, and compare outcomes with individual CBT-E, would help to build the evidence base for this adaptation. This could inform whether, and how far, virtual group CBT-E is an appropriate option within clinical services. Further research could test whether other modules of the CBT-E protocol can be similarly delivered in this population. Outcomes from a larger sample may also identify whether specific groups of people are more or less likely to benefit from this mode of delivery.

Pilot studies have relatively limited external validity [4] and, with all participants being female and White British, outcomes cannot be extrapolated more broadly. However, there is a need for studies to be conducted in real-world clinical settings to establish whether interventions fit the populations that are seen in services [24]. As the participants were a fairly accurate representation of the majority of people referred to the service, the results have practical validity in this setting.

The greatest drawback of delivering the protocol in a group setting was the policy on missing sessions. As noted earlier, Dalle Grave et al [12] highlighted the key logistical challenge of arranging group therapy. The difficult, *a priori,* decision to remove participants from the course if they missed a session, for any reason, was taken due to the nature of CBT-E. The psychoeducation, home tasks and behavioural interventions all build upon knowledge and exercises from the previous session. During the COVID-19 pandemic, there was no possibility that a clinician could help a participant catch up on material if they missed a session. Permitting people to continue after missing part of the protocol was to risk confusion or poorer outcomes, which the participant may have wrongly attributed to them not being appropriate for therapy or being less likely to recover. Conversely, the policy may have positively contributed to the high proportion (66%) of people attending every single session. It would be helpful for future research to compare different approaches, evaluating overall attendance and outcomes where missing sessions is permitted, and when it is not.

A limitation of the study was that the qualitative feedback was not anonymised. It was sent via email due to the pandemic as clinicians were unable to gather anonymised feedback on paper. With such a small sample in each group, it was thought that the creation of anonymous online forms would not effectively provide anonymity. This may have influenced the feedback.

Conclusions

To address the significant pressures experienced in child and adolescent eating disorder services, this study assessed whether it was feasible and effective to provide group CBT-E, in an online format, to patients who were medically stable and on a waiting list for psychological therapy due to concerns about body image. The results suggest that provision of online group CBT-E is a promising means of increasing the availability of evidence-based treatments to patients.

Delivery of the protocol online appeared to work well, there was an improvement on all measures of eating disorder psychopathology and impairment, and qualitative feedback was very positive.

In a time when waiting lists are increasing, and access to services can be limited for practical reasons, it is useful to know that the content from the CBT-E protocol can be delivered, understood and used in a virtual group setting.

Abbreviations

BL = Baseline

CBT = Cognitive behavioral therapy

CBT-E = Enhanced cognitive behavioral therapy

CIA = Clinical Impairment Assessment

EDE-A = Adolescent version of the Eating Disorder Examination Questionnaire

EDE-Q = Eating Disorders Examination Questionnaire

EOT = End of Treatment

N = Number of participants

R = Range

SD = Standard deviation

Declarations

Ethics approval and consent to participate

This study was approved and pre-registered as a clinical service evaluation by the Oxford Health NHS Foundation Trust, United Kingdom

Consent for publication

Not applicable

Availability of data and materials

All quantitative data generated or analyzed during this study are included in this published article. Raw qualitative data cannot be shared due to confidentiality reasons.

Competing interests

The authors declare that they have no competing interests.

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There was no funding for this project. This was a service evaluation project which took place as part of clinical practice.

Authors' contributions

LH designed and supervised the project, created and delivered the protocol, and led the writing of the manuscript. All other authors 1) took part in the preliminary literature review, 2) co-facilitated sessions of the intervention, 3) completed follow-up calls to participants, 4) provided admin support throughout the project and 5) approved the final manuscript. Additionally, RS supported with the writing of the manuscript, ERa supported with interpreting qualitative feedback, and RH, ERo and AL supported with interpreting quantitative data.

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Figures

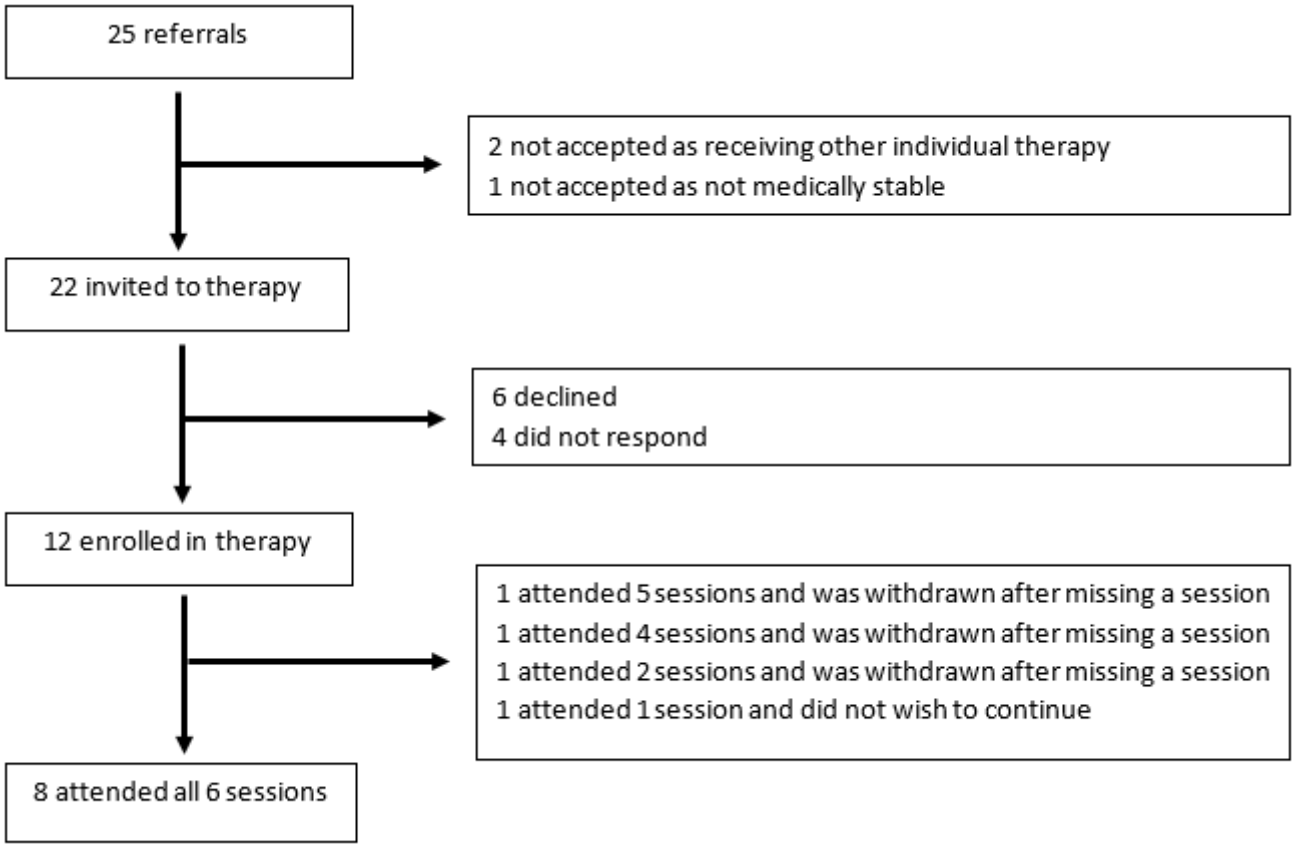

Figure 1

Flowchart of recruitment

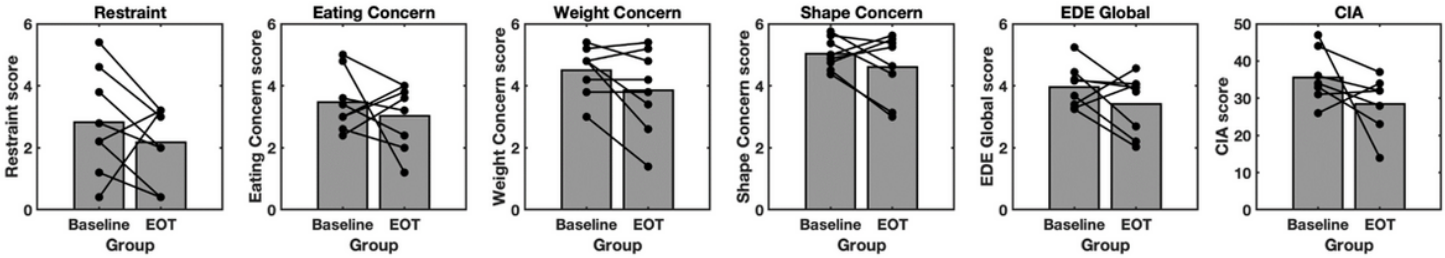

Figure 2

Change in individual and mean scores from the EDE-A and CIA