Reviewer’s report

Title: Cognitive Remediation Therapy (CRT) as a Pretreatment Intervention for Adolescents with Anorexia Nervosa during Medical Hospitalization: A Pilot Randomized Controlled Trial Protocol

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Reviewer: Melanie Brown

Reviewer's report:

This pilot randomized controlled trial (RCT) protocol investigates cognitive remediation therapy (CRT) as a pretreatment intervention for hospitalized adolescents with anorexia nervosa (AN) and tests a novel parent involvement component to treatment. Overall the study is very interesting, innovative, and much needed given the dearth of effective treatments for AN. The primary aims of study stated are consistent with assessing feasibility and acceptability of the intervention with the goal of conducting a fully powered, large scale RCT.

I have some concerns about the organization of the paper however, particularly the Methods/Study Design section. There appears to be an emphasis on the secondary outcome measures without clarity regarding the primary measures. For example, how are you assessing whether CRT is "acceptable to patients and staff" as stated in the abstract? Re-organizing the Methods/Study Design section in line with other manuscripts that have been published in this journal may help clarify which of the many measures are assessing feasibility and acceptability versus outcome. Also in the Discussion, it would be helpful to clarify which aspects of the study will specifically determine if the intervention is feasible to warrant a large scale RCT.

Some additional more minor comments:

Abstract:

1. Background: Criteria for AN not fully accurate based on DSM-5.

2. Method and Design: State number of participants, i.e. "a total of XX participants will be recruited..."
Background:

1. First line of Background section, which defines AN, is inaccurate; it only refers to first criterion. Suggestion to revise to reflect DSM-5 criteria for AN.

2. "AN is associated with significant morbidity" What do you mean? Mortality, psychiatric co-morbidity, medical complications?

3. Sentence starting with "Severe starvation…" needs a reference.

4. Sentence starting "Results from longitudinal studies of brain functioning…" This sentence is speculative as there is not conclusive evidence of long term neurocognitive "deficits" or an endophenotype. Some problems with executive functioning that do not rise to the level of clinical deficits are found in adults and may remit, at least somewhat, with weight restoration. Please revise with "may."

5. Include abbreviation "CRT" after introducing Cognitive Remediation Therapy at end of p. 3.

6. The term neurocognitive "deficits" is used throughout the article to discuss possible neurocognitive difficulties. Suggestion to replace "deficits" with "problems," "difficulties," or "weaknesses." "Deficits" implies clinically significant levels of problems when in fact the literature has only found statistically significant levels.

7. Revise sentence beginning "It has demonstrated reduction…" on p.4 to convey your meaning in a grammatically correct manner.

8. Use abbreviation AN consistently throughout instead of "anorexia" (ex. p. 4-5).

9. Sentence starting "This is especially salient for individuals with anorexia…" - the purpose of CRT is not to guide away from a "perfection based or task oriented perspective." Rather it is to improve cognitive flexibility in terms of 1) set shifting and 2) central coherence. Cognitive inflexibility may be a feature found in a perfectionistic personality style but they are not the same thing.

10. Point 9 above relates to a more major issue that the constructs of set shifting (a type of executive functioning) and central coherence, which are the two cognitive targets of CRT for AN, are not clearly or adequately defined. The set-shifting definition is okay (bottom p.4) but needs a reference. The definition of central coherence (p. 5) is not clear - weak central coherence has two aspects: difficulty with global processing AND over focus on detail. This definition also needs a reference. The sentence starting "CRT for anorexia was developed…" (p. 5) implies that central coherence is a form of executive functioning, which
it is not. Switching from detail to global processing contains an element of set-shifting, but central coherence itself is not a form of executive function. The sections on pp. 4-5 would benefit from clearer explanation of the specific cognitive targets of CRT (set-shifting and central coherence), definitions of each construct, and how cognitive inflexibility (a thinking style) may contribute to cognitive and behavioral manifestations of AN.

11. "Thinking style" is not mentioned until the last paragraph on p. 5. Suggestion to explicitly make the connection between this term and "cognitive inflexibility" earlier in the Background section.

12. Incorrect use of ; after "behavioral flexibility" on p. 6.


Methods/Study Design:

1. Participants/Study Population: The sample includes sub-threshold AN participants yet the title, abstract, and paper as a whole refer to "AN" only. Wording should reflect that the sample included participants who did not meet full criteria for AN.

2. Description of Investigational Intervention: If set-shifting and central coherence are the cognitive targets of the intervention, which tasks or sessions relate to each of these? Suggestion to include the cognitive function targeted by each task in Table 1.

3. Description of Investigational Intervention: Is the intervention delivered in an individual or group modality? Please specify.

4. Description of Investigational Intervention: Six sessions are considered treatment completion, but based on Table 1 it unclear how you will ensure that each participant receives the same, or even similar form of the intervention. How are the tasks rotated? Each task has "1-8" in the session number on Table 1. What does that mean? Please clarify to show how you plan to standardize the CRT intervention (same 6 sessions/tasks for each participant?). Also, suggestion to include "minimum of 6 CRT sessions" in Table 4.

5. Teach the Parent (TTP). First sentence p. 12: tense of pronouns is incorrect - "their" should be "she/he."
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