

What Works? – Principles for Creating Effective and Engaging Online Eating Disorder Interventions

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Background

- Eating disorders (EDs) and ED symptoms have become increasingly prevalent^{1,2}, although a minority of affected individuals actually receive treatment. Barriers to treatment include stigma, cost, and inconvenience^{1,3,4,5}.
- Integrating technology into treatment may be a possible solution, and as such, online ED prevention and intervention programs have been created, tested, and shown to be effective⁶.
- Despite the accessibility of technology-based self-help interventions, adherence is limited and dropout remains a central issue^{6,7,9}.
- While most online ED programs have employed similar techniques⁸, no studies to date have created principles to develop and assess these online programs. Research indicated a need for further investigation into the efficacy, effectiveness, cost-effectiveness and reach of already-developed programs¹.
- Currently, it is unclear which components of online ED interventions are both efficacious and essential. The goal of this study is to propose guiding principles for the development of such interventions to optimize intervention provision and outcome.

Methods

- Identified intervention components in previous and on-going clinical trials with the highest reach and flexibility/customizability of treatment^{4,8,9,10}.
- Reviewed evidence-based approaches associated with high engagement levels and comparisons between in-person and online interventions^{4,8,9,10}.
- Assessed techniques users found to be the most helpful for reducing ED symptoms based on in-program intervention data from the Healthy Body Image Program.
- Created program content, drafted principles, and assessed and revised program content based on these principles.

Overview of Program Development

- A new online guided self-help (GSH) ED program, **everyBody-ED**, was designed for college-aged women suffering from Binge ED and Bulimia Nervosa.
- Each week, users complete three 10-minute sessions and learn a core skill. After eight weeks, users will have covered content from eight themes, as seen in Figure 3.
- The three primary goals of the program include:
 - 1) reducing disordered eating symptoms,
 - 2) adopting a more positive body image, &
 - 3) practicing healthier eating habits (see Figure 1).
- Content follows a trans-theoretical approach using validated techniques from:
 - 1) Cognitive-Behavioral Therapy
 - 2) Social Learning Theory
 - 3) Acceptance and Commitment Therapy.
- The program integrates social media literacy and gamification theory to enhance user engagement.
- Each component included in the program was reviewed using the standards outlined in our principles. Content which did not adhere to the principles was either removed or modified.

Methods (cont'd)



Figure 1: Screenshot of everyBody-ED, Session 1 "Setting Goals"



Figure 2: Screenshot of everyBody-ED, Session 3 "Cycle of Binge Eating"

Results

Guiding Principles	Implementation in everyBody-ED
Theoretical model for target population?	Inclusion of mechanisms related to CBT and Social Learning Theory were included (e.g., cognitive restructuring, reduction of ED behaviors)
Length of overall program and sessions?	Session length <10 min 22 sessions in program
Writing style and tone?	Feminist, motivational, not funny or cute; reading level was appropriate for college students
Skill development?	Users learn simple skills important for symptom reduction (e.g., meal planning, regular eating, self-monitoring)
Activities to boost user engagement and improve treatment outcomes?	Program is interactive, individualized, and includes engaging videos and feedback mechanisms
Relevant and engaging outcome assessments?	Inclusion of a weekly check-in assessing ED behaviors; *standard instruments must be utilized outside of the program to assess outcome
Inclusion of helpfulness ratings of skills and techniques?	Helpfulness ratings are included at the end of each session
Front-loading core content?	First four themes cover reducing ED behaviors, cognitive restructuring, and improving body image
Inclusion of behavioral reinforcement strategies?	Positive reinforcement after completing a session in the form of individualized feedback; badges awarded upon completion
Graphic design?	Designed aesthetically pleasing graphics (see Figures 2-4)

Results (cont'd)



Figure 3: everyBody-ED User Journey; example of graphic design and demonstrates length of program

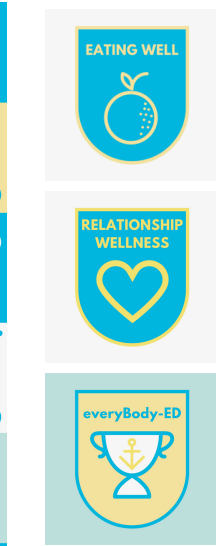


Figure 4: Examples of badges for completing sessions; example of behavioral reinforcement

Conclusions and Discussion

- We developed effective, straightforward principles and recommendations for authoring online GSH ED programs. We feel that these principles will also produce interactive content that is engaging for participants using the program and will provide data to assess content relevance and utility.
- As noted in the results, weekly check-ins assessing ED behaviors are included in the program. However, validated outcome measures such as the EDE-Q must be conducted outside the program. Thus, all principles were met in the program, but it must be paired with an external, validated outcome measure.
- Considering that online programs are constantly being developed and evaluated without measures of comparison, the goal is for these principles to serve as a model for future online program development. The principles are specific, yet generalizable to ensure their applicability across all ED interventions and other clinical disorders.

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