

Using Technology to Improve Treatment Outcomes for Children and Adolescents with Eating Disorders



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KEYWORDS

- Eating disorders • Technology • Mobile applications • Massive open online courses
- Anorexia nervosa

KEY POINTS

- This article describes the development of 3 technology-based innovations that aim to improve outcomes for children and adolescents with eating disorders (EDs) by directly addressing issues of scale, access, and generating datasets large enough to stimulate treatment development.
- It discusses the use of massive open online courses (MOOCs), an emerging methodology for online learning, and the use of mobile applications for large-scale dissemination.
- The authors present 3 case studies: (1) the modification of a MOOC methodology for psychotherapy training in manualized family-based therapy (FBT) for adolescents with anorexia nervosa, describing the development of the course as well as the ongoing US National Institutes of Health-funded study to evaluate its impact on clinical outcomes; (2) a modified MOOC platform for the delivery of FBT as a guided self-help intervention for parents of children with anorexia nervosa; and (3) the development of mobile applications as a means of delivering data-driven targeted interventional components to individuals who are not in treatment.

INTRODUCTION

Anorexia nervosa (AN) and bulimia nervosa (BN) are serious psychiatric disorders that constitute an important public health problem in terms of prevalence, cost, morbidity, and mortality.^{1,2} Approximately 13% of young women will suffer from a diagnosable

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eating disorder (ED) in their lifetime.³ It is just beginning to be understood that disordered eating among young men is far more common than previously believed.⁴ Individuals with EDs have elevated mortality rates and high medical costs, and often develop physical and psychiatric comorbidities.^{2,4,5} Despite the establishment of clinical practice guidelines for effective treatments,⁶ dissemination and implementation of evidence-based treatments have progressed slowly, with only a small proportion of affected individuals seeking and receiving treatment.^{4,7} Some of the barriers to treatment include insufficient numbers of adequately trained clinicians,⁷ shame associated with the illness,⁸ geographic constraints, and substantial costs associated with treatment.⁹ These reasons, coupled with the relative rarity of the disorders, have meant that the field has been hampered by a lack of data. This has made treatment development especially challenging and slow relative to other disorders. These difficulties can be summarized as problems of scale, access, and innovation inertia caused by a lack of data.

THE CHALLENGE OF SCALABILITY AND ACCESSIBILITY

The current front-line treatment for adolescents is a specific form of family-based treatment (FBT), which leads to full remission in about 50% of patients initially, outperforming individual approaches in the follow-up phase.¹⁰ Largely a behavioral treatment, it features interventions highly specific to the illness, such as framing progress around weight gain, orchestrating an intense scene around the illness, and a family meal that includes *in vivo* parental coaching. Given the specificities of the treatment model, specialist training is a necessity. However, training to the level of certification consists of attending a 2-day intensive seminar, with few following up with the required individualized session-by-session supervision on treatment with at least 3 families. Even where this training has been undertaken at an institutional level, the model has not been implemented with fidelity.¹⁰ This inherent lack of scalability is a huge challenge for treatment providers and health systems at a global level.

The net result of these challenges means that most adolescent patients with a diagnosis of AN do not have access to the treatment that is most likely to bring about full and sustained recovery. Thus, the same challenges seen from the point of view of those who have received a diagnosis is a problem of access. The existing disparity between need and availability of specialized treatment for AN is especially alarming given the vital importance of early intervention for maximizing chances of recovery, and the substantial medical and psychosocial consequences if AN persists. Thus, there is an immediate need to invest resources in adapting FBT to be scalable from the perspective of treatment providers and accessible from the perspective of those who need it.

PROBLEMS OF A LACK OF DATA

Although EDs have seen an increase in research interest in recent years, most clinical studies are of adult populations. There are only 7 published randomized clinical trials examining adolescents with AN, totaling just 480 subjects. In BN, few treatments exist that were specifically designed for child and adolescent populations, and extrapolating from treatments of choice for adults (eg, cognitive behavioral therapy) has not proven particularly fruitful, although there are 3 randomized clinical trials examining this population. In AN, there are substantial difficulties associated with conducting research, and among the greatest challenges are the relative rarity of this disorder, and either the resultant lack of statistical power necessary to detect changes, or the time it takes to build adequately powered sample sizes. In a recent review of evidence-based treatments for AN,¹¹ the authors concluded that relatively little

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