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### Permalink

<https://escholarship.org/uc/item/759332cv>

### Journal

Adolescent Health Medicine and Therapeutics, 13(0)

### ISSN

1179-318X

### Authors

Gorrell, Sasha

Reilly, Erin E

Brosf, Leigh

et al.

### Publication Date

2022-04-04

### DOI

10.2147/ahmt.s334977

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# Use of Telehealth in the Management of Adolescent Eating Disorders: Patient Perspectives and Future Directions Suggested from the COVID-19 Pandemic

Sasha Gorrell<sup>1</sup>, Erin E Reilly<sup>1,2</sup>, Leigh Brosos<sup>1</sup>, Daniel Le Grange<sup>1,3</sup> 

<sup>1</sup>Department of Psychiatry and Behavioral Sciences, University of California, San Francisco, San Francisco, CA, USA; <sup>2</sup>Department of Psychology, Hofstra University, Hempstead, NY, USA; <sup>3</sup>Department of Psychiatry and Behavioral Neurosciences, The University of Chicago (Emeritus), Chicago, IL, USA

Correspondence: Daniel Le Grange, Department of Psychiatry and Behavioral Sciences, University of California, San Francisco, 401 Parnassus Avenue, San Francisco, CA, 94143, USA, Email Daniel.LeGrange@ucsf.edu

**Abstract:** Efforts to increase accessibility of eating disorder (ED) treatment via telemedicine have been ongoing for the past decades. However, there has been a recent surge in research focused on remote delivery of interventions since the onset of the novel coronavirus pandemic (COVID-19) in 2020, the related lockdowns, and an exponential increase in ED symptoms in youth secondary to the pandemic worldwide. In the current review, we provide a focused summary of existing literature regarding telehealth for the treatment of EDs in adolescents using a frame of past, present, and future work. Specifically, we begin with a brief overview of research in remote delivery for EDs in youth prior to 2020. Then, we detail more recent studies in this domain, with a focus on research conducted during the COVID-19 pandemic. We close by outlining limitations of the existing data and future steps necessary to expand the rigor and impact of this work. Overall, there are considerable limitations associated with research conducted during the pandemic, but an increase in the acceptability of remote delivery methods and interest in hybrid care appears to be feasible, and likely to be lasting. Future work must replicate more recent research in non-pandemic contexts and prioritize evaluation of factors that will aid in matching patients to the most efficient and effective modalities of care moving forward.

**Keywords:** telehealth, COVID-19, eating disorders, adolescents, family-based treatment, remote delivery

## Introduction

Eating disorders (EDs), including anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder, and avoidant/restrictive food intake disorder, are serious psychiatric conditions characterized by significant alterations in body weight and/or eating behaviors.<sup>1</sup> These disorders are associated with high rates of morbidity, mortality, personal and societal costs.<sup>2</sup> Given that the typical age of ED onset is in adolescence,<sup>1</sup> and these disorders can have a long and chronic course,<sup>3</sup> early and effective intervention is of crucial importance.<sup>4</sup> The complexity of these disorders typically requires a specialized, evidence-based approach. Family-based treatment (FBT) is the current first-line treatment for adolescents with anorexia nervosa (AN) and recommended for those with bulimia nervosa (BN), with evidence that cognitive-based therapy (CBT) may also be an efficacious treatment option for some adolescents.<sup>5</sup> FBT is a manualized, evidence-based treatment in which caretakers are mobilized to intervene on the disorder by assuming initial responsibility for restoring adequate nutrition for their child. The clinician helps to empower parents to support their child in establishing a regular pattern of eating while also disrupting the pattern of ED behaviors (eg, restriction, compensatory exercise). Over time, as the illness recedes, the focus of FBT is on shifting developmentally appropriate control of eating back to the child. Alternatively, CBT takes the approach of working more directly with the adolescent throughout treatment, includes a focus on understanding associations between ED behaviors and cognitions, and uses a range of common CBT techniques,

such as self-monitoring, psychoeducation, and behavioral experiments. Evidence-based treatments such as FBT or CBT are not available for many adolescent patients who need them due to the limited number of adequately trained providers, particularly in rural geographic regions,<sup>6</sup> high demand and extended wait lists,<sup>7</sup> and the often prohibitively high costs of treatment that discourage individuals from seeking ED treatment.<sup>8</sup>

With these challenges in mind, there is some evidence that adaptations of FBT and CBT delivered via remote methods (eg, telemedicine) are effective, and increase the accessibility of evidence-based care.<sup>9</sup> Further, a recent increase in digital interventions (eg, mHealth and app-based approaches) has contributed to burgeoning interest in the comparative effectiveness of remote vs in-person delivery of ED treatment.<sup>10</sup> In addition, the COVID-19 global pandemic presented an unprecedented shift in the need for remote delivery of effective ED treatment over the past two years. The impact of social isolation and disruptions in daily life associated with the pandemic contributed to increased rates of reported ED symptoms,<sup>11</sup> and underscored the need for future development of treatment approaches that can be widely disseminated for immediate uptake. The overall goal of the current review is to summarize existing work in telehealth and remotely delivered interventions for ED care among adolescents, with a particular focus on more recent research. To do so, we begin by providing a very brief summary of existing evidence of “where we have been” in the use of telehealth in adolescent ED treatment. We then prioritize a focus on “where we are” now, and how more recent work in the past two years during the COVID-19 pandemic informs “where we are going,”— future directions for remote delivery of evidence-based care for these deadly disorders. Within the current review, we refer to telehealth (used interchangeably with “telemedicine”) as any mental health treatment delivered remotely, such that the patient and provider are not located in the same vicinity. In our definition, we include treatments delivered via a range of remote methods, including video conferencing technology and telephone. We briefly review some remotely-delivered prevention programs or efforts to confer psychoeducation or therapeutic principles via mobile applications (or “mHealth”). These applications represent distinct approaches to alleviating mental health symptoms from telehealth, given that many do not directly use a provider. Thus, we refer to them using the term “mHealth” to highlight them as an example of broader efforts to deliver remote services.

## Where We Have Been: Overview of the Study of Remote Adolescent ED Treatment Delivery

A majority of research on remote delivery of evidence-based treatment for EDs has been conducted in adult rather than in adolescent samples; further, the existing research focuses largely on BN, binge eating disorder (BED), and other specified feeding or eating disorder (OSFED), rather than AN.<sup>12</sup> It may be that the medical management required with AN, as well as low population base rates and high treatment drop-out rates have discouraged researchers from exploring telemedicine options for the treatment of this disorder.<sup>13</sup>

Prior to 2020, the literature on telemedicine in evidence-based treatment for EDs was limited, though promising. Importantly, to our knowledge, existing work prior to the pandemic focused on the remote provision of psychological/behavioral services, rather than psychiatric services, dietary counseling, or medical services. A systematic review concluded that online treatments for EDs are feasible and acceptable, but at the time, large-scale studies, randomized controlled trials (RCTs), and studies that cut across ED diagnoses had not yet been conducted.<sup>14</sup> There were several recent studies, some of which were published recently but were all conducted prior to the pandemic that focused on evaluating digital interventions that served as adjunctive or prevention-based interventions (eg, videos).<sup>10,15–17</sup> Taken together, this work suggests that app-based approaches may be particularly useful as an augmentation to standard treatment for some adolescents who may need more intensive care,<sup>15</sup> for reaching individuals who may be harder to otherwise engage in treatment if not remotely,<sup>16</sup> and to selectively replace some in-person visits with cost-saving remote alternatives that were generally acceptable to patients and providers alike.<sup>10,17</sup> Conclusions from these studies consistently suggested some challenges in engagement virtually and specifically low patient engagement in digital interventions, supporting the need for increased personalization and tailoring of some features of delivery within future efforts in this domain. In the next section, we discuss how the last two years (during the COVID-19 pandemic) contributed to a burgeoning interest in, and determination of a growing need for telemedicine treatment.

## Where We are: Impact of COVID-19 on Telehealth for Adolescent EDs

In early 2020, the COVID-19 pandemic and ensuing lockdowns have prompted a seismic, worldwide shift in the necessity for remote delivery options for EDs.<sup>18–20</sup> There are aspects of the pandemic that may have been unique in the immediate effects on the treatment of EDs (eg, navigating food scarcity in the beginning stages of lockdown); these issues may not generalize to telehealth for EDs more broadly in the future.<sup>21</sup> However, there is no question that the pandemic and its impact has prompted increased attention toward developing and evaluating teletherapy options for treatment that will likely generalize in the years to come.<sup>22</sup> In summarizing existing work, we organize our overview of COVID-19-related work on telehealth treatments for EDs into three sections: (i) published clinical recommendations for shifting into telehealth practice, (ii) data exploring the impact of COVID-19 on individuals with EDs and shifts to telepractice across levels of care, and (iii) data describing outcomes for teletherapy undertaken because of COVID-19-related factors.

### Published Clinical Recommendations for Shifting into ED Telehealth Practice

As the broader field of mental health experienced an abrupt shift to a new mode of treatment delivery at the start of the COVID-19 pandemic, a number of research groups disseminated recommendations for providers in the field of EDs. Some work detailed new challenges and ED-specific risks at the outset of shelter-in-place orders that indicated increased need for virtual support, including lack of food access, the replacement of social interactions with increased reliance on media messaging, and limited access to normal coping mechanisms including exercise options (thereby exacerbating weight and shape concerns, and/or other compensatory symptoms used when exercise was not an option).<sup>21</sup> With a clearly articulated increased need for services, one scoping review also illuminated new challenges associated with the reliance on a remote mode of delivery.<sup>23</sup> Some of the general challenges noted across the literature were difficulties in ensuring accurate communication when monitoring remotely, difficulties building rapport with individuals with EDs via screen, privacy concerns, and problems arising when patients disconnected or left video sessions unexpectedly.<sup>23</sup>

### Family-Based Treatment

Additional challenges noted specifically in the context of FBT included inability to ensure adequate family involvement in sessions, problems that arose when patients were not able to be physically present for weigh-ins (eg, increased possibility of weight manipulation), and challenges overseeing ‘family meals’ as the clinician might easily do in a standard FBT approach.<sup>19</sup> In light of these challenges, an initial review of a rapidly scaled-up system was only able to formally provide weak recommendations for telehealth FBT and online guided parental self-help FBT.<sup>23</sup> Taking a slightly more optimistic stance, one overview of the transition to remote care on an FBT-based adolescent medical stabilization unit identified several positive features that were noted as worth retaining post-COVID.<sup>24</sup> For instance, it was found that video conferencing facilitated opportunities to liaise with parents, community providers, and programs located at a geographical distance. Video conferencing also proved useful in generating naturalistic exposures for social anxiety triggers (given that some youth may experience discomfort when viewing themselves on screen). On an outpatient basis, clinical recommendations when implementing FBT emphasize that all efforts should be made to retain the structure of the standard treatment.<sup>19</sup> This might include positioning a camera to be able to view the “family meal,” and continuing to conduct in-session weighing with the use of a home scale.<sup>19</sup> Attending regular medical appointments is also important in maintaining accurate weight status,<sup>19</sup> but this may be particularly aversive to patients and families who fear COVID-19 infection, as was recently evidenced within an ED-care setting in Singapore.<sup>25</sup>

Other recommendations specific to caring for youth with an FBT approach include asking that a family arrange themselves in their physical space in a manner that facilitates communication more between them (ie, in a semi-circle) than solely with the camera. In addition, to retain privacy for a one-on-one check in with the adolescent, space may need to be used creatively (eg, joining the session for a few minutes from a car if other private alternatives are unavailable). Given that recommendations for FBT to-date are based upon clinical observations rather than empirical evidence,<sup>19</sup> a recent protocol details a planned study that will formally test pre- and post-implementation efforts for FBT over a four year period.<sup>26</sup>

## Cognitive-Behavioral Therapy

In a uniquely efficient and responsive manner, a survey of clinicians who provide CBT for EDs was conducted over a three-day span, and summarized in a publication as a resource for providers who needed immediate guidance for ‘best-practices’ in delivery of CBT via telehealth.<sup>18</sup> Broad recommendations that were relevant to the practice of CBT for EDs underscored to the clinician that they should attempt to proceed as normal. For example, clinicians were advised to maintain a firm stance of encouraging patients to eat adequately and to remain flexible when preferred foods were not available; to engage in exposures as much as possible even though in vivo options were more limited; to find ways to adaptively conduct open weights; and to creatively use sessions to engage in drawing diagrams, writing, and exploring body image.

## Digital Formats

In addition to treatment that is delivered remotely, ED interventions can also be broadly deployed via app-based and other mHealth platforms. At least two recent commentaries have stated a position that argues for increased use of varied digital formats both for assessing EDs, as well as augmenting or replacing existing treatment modalities for EDs.<sup>22,27</sup> Of note, a review that just pre-dated the COVID-19 pandemic already anticipated some of the advantages of digitally-enhanced treatment, including increasing widespread support for EDs to marginalized populations who are less likely to overcome barriers associated with cost, access, and ED-related stigma.<sup>27</sup> Once in the midst of the pandemic, these arguments appeared even more salient, and a pressing need for more resources became a call to action for adjusting our systems of care to provide for digital mental health services.<sup>22</sup> Taylor et al specifically highlight systems and policy-level changes that are needed to fully enact digital care services for individuals with EDs, as detailed in the “Future Directions” section below.

## Data Exploring the Impact of COVID-19 and Shifts to Telehealth for EDs

At the commencement of the pandemic, many ED psychological and medical treatment services moved to a hybrid model or fully to telehealth. Given the lack of precedent for this transition, several teams published papers describing specific adaptations that they made to the provision of treatment to accommodate patients during acute lockdown phases across various levels of care.<sup>23–25,28</sup> Graell et al<sup>28</sup> found that telehealth visits were helpful for continuity of care and were particularly successful for outpatient treatment of EDs, while a day hospital program proved more challenging to implement using a telehealth or hybrid approach to care. Another team found that the shift to telehealth made intakes to an ED stabilization unit more burdensome, but that telehealth was beneficial for the delivery of outpatient care after discharge.<sup>25</sup> While the specifics of how programs handled hybrid services, medical management, family involvement, and frequency-of-care varied somewhat depending on the sample in question, the conclusions drawn by this work largely support the feasibility of moving various levels of care to hybrid or fully telehealth formats.

## Patient Experiences

A number of studies that explored patient experiences during the pandemic suggested a greater need for care given reports of increasing symptoms, but decreased access to healthcare services and challenges associated with the shift to telehealth.<sup>29–31</sup> Around 30% of a sample of adolescents and young adults indicated a disruption in their care as a result of the pandemic, with about half (47%) the sample reporting stopping one aspect of their care (eg, nutrition visits).<sup>29</sup>

Overall, data regarding patient perceptions of the move to telehealth has been considerably mixed. On one hand, several studies found that patients reported no change in the quality of their care when shifting to telehealth<sup>29,30</sup> or that generally patients find the experience to be positive with little impact on the therapeutic relationship.<sup>30,31</sup> On the other hand, other studies have found negative endorsements of telehealth; for instance, a sample of 1021 individuals with EDs in the US and Netherlands reported that among those who had transitioned to teletherapy, the quality of care was reported to be “somewhat” or “much” worse than usual,<sup>32</sup> with other work replicating this sentiment.<sup>33</sup> Some research identified tentative predictors of lower satisfaction with remote therapy services, such as AN diagnosis,<sup>34</sup> lower therapeutic alliance at baseline, shorter duration of treatment, and lower COVID-19 anxiety;<sup>33</sup> however, these findings require replication.

Several other studies have used qualitative methods to learn more about the potential benefits and/or downsides of shifting ED care to telehealth. A sample of 129 patients in the United Kingdom (UK) reported on the influence of the pandemic on their ED; using a mixed-method approach, patients noted issues associated with accessing teletherapy, decreased accountability associated with online care, and some specific challenges, such as the difficulty of seeing their appearance constantly via video conferencing software.<sup>35</sup> These challenges have been echoed in other qualitative work in the UK, which highlighted heterogeneity of experience but noted simultaneous increases in ease of access (ie, decreased commuting times) along with decreases in connection, privacy, and accountability.<sup>36</sup>

### Provider Experiences

As one of several general reports on the impact of the pandemic on adolescent medicine, Revet et al reported on a survey of child and adolescent psychiatrists regarding the impact of the pandemic on the delivery of services across Europe. Directors of child/adolescent psychiatry services completed surveys regarding the impact of the pandemic in both 2020 as well as 2021; while the focus of the survey was on all psychiatric conditions, EDs were included. In the year following the pandemic, providers indicated a decrease in the impact that COVID-19 had on treatment delivery, and only 20% of services remained partially or fully closed to the pandemic. However, providers did note a significant increase in the perceived impact of the pandemic on mental health among youth, particularly regarding suicidal crises, anxiety disorders, EDs, and depressive episodes. Providers noted significant concern regarding capacity to accommodate the increases in referrals they anticipate in the aftermath of the pandemic.<sup>37</sup> These concerns were echoed by other surveys of providers in Italy,<sup>38</sup> with a significant portion of mental health professionals indicating that they believed there was compromise to their therapeutic alliance and quality of care. Latzer et al described the experience of a medical center staff in Israel transitioning to telemedicine with Orthodox Jewish clients who had previously limited access to the internet, which elicited unique challenges in addition to those described above.<sup>39</sup>

Finally, some work explored the personal experiences of therapists in transitioning to telehealth platforms during the pandemic. Stewart et al found that in a sample of 23 therapists in the UK, many reported feelings of isolation, decreases in confidence, and an experience of intrusiveness of practicing therapy in one's home.<sup>31</sup>

### Data Describing Outcomes for Teletherapy Undertaken Due to COVID-19

Initial information regarding telehealth data during the pandemic focused on outcomes related to quick “scale-ups” of care within outpatient or other settings. For instance, Wood et al<sup>40</sup> described outcomes from the first 30 days of a telehealth transition within an adolescent medicine department that regularly treats clients with EDs. While the data supported the ability of the group to transition to telehealth rapidly, it also supported widening of health disparities in service access, with non-White patients having significantly lower visit completion rates than White patients.<sup>40</sup>

More recently, some treatment groups have put forth initial data with evidence supporting the shift to telemedicine during the pandemic. While these datasets have been smaller in size due to the limited time for data collection, they highlight comparable outcomes between face-to-face and telehealth delivery of treatment. Yaffa et al<sup>41</sup> and Latzer et al<sup>39</sup> both described a shift to online care in ambulatory, day patient, and inpatient facilities in Israel; further, in case series describing the course of treatment, both articles noted heterogeneity in treatment response, such that the shift to telemedicine was helpful for some patients, but introduced significant challenge for others, particularly related to patient issues in navigating technology, being at home with extended family in close quarters, and greater geographical distance, all of which served to exacerbate issues related to treatment ambivalence. Next, Raykos et al<sup>30</sup> published initial outcomes from a shift to telemedicine during the pandemic for 25 patients with EDs. Contrary to the team's hypotheses that there would be poorer outcomes via telehealth, patients achieved large decreases in ED symptoms and mood that were comparable to benchmarks achieved in the same clinic (delivered face-to-face) the year prior.<sup>30</sup> In a similar manner, Levinson et al<sup>42</sup> published initial pilot outcomes for a multidisciplinary intensive outpatient program for EDs using data from before (n = 60) and during (n = 33) the pandemic. Results suggested no difference in outcomes by delivery mode, such that both patients seen in-person and via telemedicine demonstrated increases in BMI over time and decreases in cognitive ED symptoms.<sup>42</sup> Overall, data from both these investigations tentatively suggest that intensive treatments can be adapted for telemedicine successfully without a meaningful change in outcomes.

In summary, a number of studies published during the COVID-19 pandemic describe efforts to transition various levels of care to a telehealth format, challenges and benefits to doing so, and initial outcomes for these efforts. Take-aways thus far include: (a) adopting various levels of care for virtual delivery appears feasible and can be scaled up on a rapid basis if required; (b) both patient and therapist perceptions of teletherapy are mixed; (c) there are a number of ways in which therapists can creatively adapt evidence-based treatments for delivery in a telehealth format, and (d) while there are likely moderators of treatment response that should be identified by future research and some heterogeneity in effects, teletherapy is tentatively associated with similar outcomes compared to in-person treatments.

It is important to note that while the pandemic spurred an increase in research focused on teletherapy, there are several limitations of this work that restrict its generalizability. Specifically, most of these investigations have been retrospective, cross-sectional, and have used small sample sizes. Secondly, as has been detailed in some conceptual writing on COVID-19 (eg, Cooper et al, 2020<sup>21</sup>), the context of the pandemic introduces several confounding and idiosyncratic variables that may influence both the delivery of treatment and ED symptoms, including increases in stress, depression, and anxiety,<sup>43</sup> increases in psychosocial and financial stress for patients and their families, and lockdown protocols that may not share many similarities with individuals' general schedules. For this reason, it is critical that findings drawn from data collected during the pandemic be replicated outside of this context.

## Where We are Going: Future Directions in Telehealth for Adolescents with EDs

The COVID-19 pandemic need to transfer to a remote delivery approach in March 2020 with practically no notice meant that many ED therapists needed to arrange a new way of working with their patients in just a few days. Disadvantages to this (necessary) alacrity in transition during the onset of the COVID-19 pandemic have already been highlighted just above, but there are also several benefits to what might otherwise be perceived as growing pains that deserve mention. For one, a need to pivot quickly in any setting forces potentially much needed change in a short time course. On a global level, we changed policy as a mental health field at a speed that might otherwise have taken more than a decade. Below, we discuss some of the advantages to these monumental changes in our standard-of-care, and highlight how the resulting “where we are now” informs where we might dedicate clinical and research resources in the immediate future.

From a research perspective, recruitment for online studies was instantly enhanced and in particular, allowed for a broader reach in enrolling for telehealth studies (eg, with patients across United States state lines). Further, research protocols that would have been only hesitantly allowed to transition online with review board or sponsor support (eg, government-funded large-scale clinical trials) were readily allowed to transition at an expedited pace. If we extend these research adjustments to consider their clinical applicability, we have to date not specifically determined for whom a remote delivery method might be more or less effective than face-to-face care. Further questions remain as to the timing of implementation (eg, considering remote delivery only after establishing face-to-face care first) and/or the dose that might be optimal for current evidence-based treatment when delivered remotely (eg, weekly for one hour might not be indicated in the interest of promoting engagement). In addition, as online treatment studies have become more geographically diffuse over the past two years, our results can potentially generalize more broadly across a broader swath of individuals with varying sociodemographic characteristics. This was certainly evidenced by one general adolescent medicine clinic who noted the advantage of telemedicine in improving care for a wider geography of ED patients.<sup>20</sup> In addition, given a clear need to improve our attention to intersectionality in ED research,<sup>44</sup> these necessary changes appear to provide considerable potential benefits to the field as a whole, and may critically inform our evaluation of for whom and why certain approaches to treatment are more or less effective.

Another consideration highlighted by Waller et al is how patients might assume that telehealth is less preferred or “second best” to in-person care.<sup>18</sup> During COVID-19 lockdowns, such a choice could not be given, and consequently more individuals were able to experience telehealth care and potentially “buy into” its benefits, regardless of their initial skepticism. Relatedly, moving services to digital platforms that are potentially more acceptable among adolescents as a mode of communication opens the opportunity to reach populations for whom in-person treatment might seem less

desirable, or even something to be avoided. Certainly, remote delivery may promote accommodation of social anxiety, although published recommendations for telehealth ED care provide ideas for how to counteract this tendency.<sup>18,19</sup>

Initial evidence suggests that moving therapeutic care to a hybrid or remotely-delivery model is feasible, acceptable to many patients and therapists, and does not appear to compromise our clinical outcomes. Many who do this work have urged the need to maintain the integrity of the treatment modality across formats, and creatively work around challenges (eg, Waller et al, 2020<sup>18</sup>). As the COVID-19 lockdowns are beginning to be lifted, and associated challenges may begin to abate (eg, food supply chains are improved in many regions), we have the opportunity to now more systematically study the implementation of evidence-based treatments with EDs with dedicated control groups. In working to improve the experience of remote treatment, considering the patient perspective (eg, working to improve the personalized nature of some app-based work) should be matched with considering the therapist perspective (eg, finding ways to help patients to more effectively engage). We also have the opportunity to advocate for continued allowance and promotion of digital health delivery methods, which likely will require widespread agreement on systemic and policy-level changes.<sup>22</sup> Some suggestions in this realm include expanding training for those for whom the use of remote delivery is novel, reducing barriers to licensure across different geographic regions (particularly in the United States), and establishing better guidelines for safety, privacy, and payment for different formats of care.<sup>22</sup> There is also a critical need to expand rigorous evaluation of telehealth work to include other types of ED care, including nutritional counseling and medical management.

With a broader long-range view, remote delivery should ultimately be thought of as a potential opportunity to enhance mental health care more broadly. Within this framework, treatment development could include the use of stepped-care study designs whereby remote methods are prioritized for those for whom they are most successful. Further, hybrid models of treatment might be explicitly tested with a focus on the comparative impact of personalized real-time app-based care, rather than considering digital modalities merely as a replacement for in-person services.

## Conclusions

The aim of the current review was to provide an overview of research focused on remote delivery of treatment for EDs, with a particular focus on how the COVID-19 pandemic influenced both interest in, and the need for work in this domain. Overall, existing research prior to the pandemic supported the feasibility of remotely delivered ED care, as well as initial efficacy of this approach, despite the need for larger-scale, randomized designs. Since the start of the COVID-19 pandemic, a number of studies have explored the initial effects of widespread moves to telehealth; initial results are mixed regarding therapist and patient subjective experiences but do highlight comparable outcomes to in-person treatment. Altogether, from the evidence that has been established, albeit in haste, over the past two years, it appears as if dedicating research and resource efforts into the development and improvement of remote delivery of ED care, along with rigorous research on its delivery and outcomes, is in the best interest of patients and clinicians alike.

## Funding

Dr. Gorrell is supported by the National Institute of Mental Health (K23MH126201).

## Disclosure

Dr. Le Grange receives royalties from Guilford Press and Routledge, is co-director of the Training Institute for Child and Adolescent Eating Disorders, LLC., and a member of Equip Health Clinical Advisory Board. All authors report no other potential conflicts of interest in this work.

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