

Treating Eating Disorders at Higher Levels of Care: Overview and Challenges

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Published online: 27 June 2017
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Abstract Higher levels of care (HLC)—including inpatient hospitalization, residential treatment, partial hospitalization, and intensive outpatient treatment—are frequently utilized within routine care for eating disorders. Despite widespread use, there is limited research evaluating the efficacy of HLC, as well as clinical issues related to care in these settings. This review describes the different levels of care for eating disorders and briefly reviews the most up-to-date guidelines and research regarding how to choose a level of care. In addition, as HLC approaches for ED continue to be developed and refined, pragmatic and conceptual challenges have emerged that provide barriers to clinical efficacy and the execution of high-quality treatment research. This review includes a discussion of various issues specific to HLC, as well as a summary of recent literature addressing them.

Keywords Eating disorders · Levels of care · Treatment guidelines · Treatment overview · Severe enduring anorexia · Family involvement in treatment

Introduction

Eating disorders (ED), including anorexia nervosa (AN), bulimia nervosa (BN), and other specified feeding and

eating disorder (OSFED), are serious psychiatric illnesses, frequently associated with severe medical complications [1] and a chronic, treatment-refractory course [2]. AN is characterized by self-starvation resulting in excessive weight loss, extreme fear of weight gain or behaviors that interfere with weight gain, as well as disturbance in an individual's experience of his or her shape and weight. BN involves a recurring pattern of binge eating followed by compensatory behaviors such as purging or laxative use in an attempt to counteract the calories consumed during the binge, as well as over-evaluation of shape and weight [3]. OSFED is the diagnosis used when an individual endorses disordered eating behaviors or pathology associated with significant distress or functional impairment, but presenting symptoms do not fit the criteria for a specified eating disorder diagnosis [3]. Across diagnoses, ED behaviors (e.g., restriction of food intake, binge eating, and compensatory behaviors) are associated with acute medical risks, including malnutrition, electrolyte disturbance, dehydration, abnormal heart rate, or physiological instability, that often require close medical monitoring and intensive clinical intervention. At the same time, individuals with ED often have a deep ambivalence about recovery and find it difficult to resist the urges to engage in ED behaviors. Reviews of the literature suggest that only around half of patients recover receiving the most effective evidence-based outpatient treatments (for reviews, see Lock [4•]; Hay, Bacaltchuk and Stefano, [5]; Galsworthy-Francis and Allan, [6]). Thus, alternative models of treatment are often necessary for recovery, and clinical practice has undergone a shift towards more individualized management of ED with stepped levels of clinical care [7–9].

The majority of rigorous treatment outcome research has been completed within an outpatient setting; as such, not as

This article is part of the Topical Collection on *Eating Disorders*

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much is known about the relative efficacy of the higher levels of care (HLC) for EDs [10••]. However, treatment approaches within HLC represent critically important alternatives for severe or treatment-refractory ED and aim to match illness severity with treatment dosage, while significantly reducing the overall cost of treatment [11, 12]. The purpose of this review is to describe the different HLC for ED in both adults and adolescents, briefly review the recent open trials and RCTs for HLC in ED, give an overview of the most up-to-date guidelines and research on level of care selection, and outline recent issues in the literature regarding the treatment of EDs at HLC. Importantly, there are several other ED diagnoses included within the DSM-5 [3], such as binge eating disorder and avoidant and restrictive food intake disorder; however, the current review will focus on AN, BN, and OSFED, given that these are the diagnoses most frequently presenting at and requiring higher levels of care and are the diagnoses most often the focus of existing literature.

Description of Available HLC for EDs

The continuum of care for EDs includes outpatient care, intensive outpatient programs (IOP), day treatment or partial hospital programs (PHP), residential programs, and inpatient hospitalization. All levels of care above outpatient services are generally considered to be HLC. A patient may move through the levels of care based on factors such as symptom severity, medical status, motivational status, treatment history, and financial limitations [13, 14], and, depending on patient needs, movement through levels of care can be bidirectional.

Designed for ED patients with medical instability, inpatient hospitalization is the highest level of care available. In hospital settings, subspecialty medical consultation is readily available, meals are supervised, and one-to-one monitoring is available if necessary. Residential treatment programs house patients full-time in a non-hospital-based treatment setting, where they typically receive meal support and multidisciplinary treatment, including individual and group therapy. The average length of stay in residential treatment programs is approximately 83 days [15]. PHP settings typically offer treatment from 6 to 10 h a day, between 3 and 7 days a week, in an outpatient setting. Unlike inpatient and residential settings, patients spend nights and sometimes weekends at their home, allowing them to maintain social relationships and practice using the skills they are learning in a non-treatment setting [16]. Patients receive daily meals, snacks, and group therapy, as well as regular meetings with a therapist, dietician, and psychiatrist [17]. IOPs offer treatment approximately 3 h a day, from 3 to 5 days a week. Like PHPs, treatment at the IOP level typically includes meal support, group therapy, individual therapy, dietary sessions, and medication management.

Stepping between levels of care can be destabilizing for patients, and it is preferable to continue with the same treatment team while moving through the continuum of care. Certainly, transition planning must be done carefully and communication between facilities and team members should be ongoing throughout treatment [18].

Existing Outcomes Research in HLC for EDs

Treatment Efficacy for HLC The literature on treatment efficacy at HLC is limited and consists largely of open trials assessing outcome at discharge. A recent review by Friedman and colleagues [10••] surveyed studies that were published between 2001 and 2015 and found 19 open trials of PHP and six open trials of residential programs. Duration of treatment was similar between PHPs and residential programs, and all but one study reported a significant improvement in weight and/or ED behaviors at discharge.

Long-Term Treatment Outcomes Of the 25 open trials of residential and PHPs reviewed by Friedman and colleagues [10••], 12 trials reported follow-up data at some interval after discharge. Among those studies, rates of follow-up completion were low (i.e., 66% for PHP; 37% for residential). Importantly, virtually, all of these studies reported that positive treatment outcomes at discharge (i.e., body mass index [BMI], reduced number of binge/purge episodes) were maintained or improved at follow-up; however, the substantial amount of missing follow-up data makes these results difficult to interpret.

Comparisons of HLC When evaluating comparative efficacy of different levels of care, randomized controlled trials (RCTs) are critical to avoid the confounding effects of psychopathology severity. More specifically, given that patients with more severe symptoms and greater functional impairment are more likely to present to HLOC than those with mild ED pathology, who often present in outpatient care, and that milder ED pathology is associated with better outcome, comparisons of outcomes across levels of care will be skewed unless patients are randomly assigned to a level of care within research designs or matched with controls based on severity of presenting symptoms. However, conducting RCTs or other rigorous research designs in HLC is costly and often is inhibited by ethical considerations related to randomization of acutely ill patients. As such, the number of studies that have compared different levels of care remain limited. Two recent studies compared outcomes for patients randomized to PHP with outcomes from extended inpatient treatment [19•, 20]. In both studies, the average length of stay in both the inpatient and PHP arms was between 3 and 4 months and was dependent on patient progress. Neither study found differences in outcome

between PHP and inpatient levels of care, and these results were consistent at follow-up [21]. Another study compared PHP with traditional outpatient therapy, and results suggested that a broad range of outcomes were significantly better among patients receiving PHP [22]. Gowers and colleagues [23, 24] compared three treatment options for adolescent AN: (1) specialist inpatient treatment, (2) specialist outpatient treatment, and (3) routine general outpatient treatment and found that improvement was similar across all conditions at both end-of-treatment and at 5-year follow-up. The authors conclude that the results provide little support for inpatient hospitalization, instead suggesting that specialized outpatient care is indicated in the majority of AN cases and that routine general outpatient treatment may be well suited to milder cases of AN [24]. Finally, one other recent study sought to compare outcomes for adolescent patients with AN randomized to either inpatient medical stabilization or inpatient weight restoration; following discharge from inpatient care, both groups were subsequently stepped down to outpatient family-based treatment [25]. This study found no significant differences in outcome between the two groups at 12-month follow-up, suggesting that a short inpatient stay focused on medical stabilization followed by outpatient evidence-based care may be more cost-effective than longer inpatient admissions focused on weight restoration.

Overall, given the small number of rigorous trials in this area, as well as considerable heterogeneity in study methodology and quality of data (i.e., significant attrition rates), no definitive conclusions can be made regarding the superiority of one level of care over another. However, findings consistently indicate that PHPs are more cost-effective than residential or inpatient treatment [26–28].

Determining Level of Care for an ED Patient

Unfortunately, given the paucity of research directly comparing different levels of treatment for ED, determining the appropriate level of care for a particular patient is often not a straightforward process. As such, practitioners are best served by considering (1) existing practice guidelines published by reputable organizations, as well as (2) individual difference variables highlighted within the literature as important in predicting treatment response. In terms of practice guidelines, the American Psychiatric Association (APA) published and have since revised recommendations for the treatment of ED that outline factors that should be considered in making decisions regarding level of care [13, 14]. In addition to the recommendations outlined by the APA, the Royal Australian and New Zealand College of Psychiatrists (RANZCP; [29]) and the National Institute of Clinical Excellence [18] have also put forth guidelines that attempt to translate research findings

regarding the assessment, management, and treatment of various ED into tangible clinical recommendations.

The NICE and RANZCP guidelines specify as a general rule that outpatient care should be the first line of treatment, and transfer to higher levels of care is recommended when a patient demonstrates non-responsiveness to outpatient care [18, 29]. On the other hand, APA indicates that providers should take into account a number of different factors, including medical status, weight as a percentage of healthy body weight, suicidality, co-occurring disorders, motivation to recover, structure needed for gaining weight, ability to control compulsive exercising, purging behaviors, environmental stress, and geographic location of the treatment center in making an initial treatment recommendation.

Despite some differences in how best to engage in decision-making regarding level of care, there are several areas of overlap across the guidelines regarding factors important to consider. All three provide a clear outline for determining medical stability and recommend that patients not meeting outlined requirements should be considered for admission to an inpatient medical stabilization program. Specific criteria for medical instability within adults include a heart rate of <40 bpm, blood pressure < 90/60 mmHg, glucose <60 mg/dL, potassium <3 mEq/L; electrolyte imbalance, temperature < 97.0 F, dehydration, and indication of organ compromise (e.g., hepatic, renal, or cardiovascular), poorly controlled diabetes, or a BMI <14 kg/m². For children and adolescents, medical instability is outlined by APA and RANZCP as being indicated by a heart rate near 40 bpm, orthostatic blood pressure changes (<20 bpm increase or <10–20 mmHg drop), blood pressure (80/50 mmHg), hypokalemia, hypophosphatemia, or hypomagnesemia. A recent update on the medical management of EDs in adolescents provided a revised list of medical criteria that indicate the need for hospitalization in youth, which deviated slightly from those outlined by APA [30].

In addition to medical stability, both the RANZCP and APA indicate that inpatient treatment may be indicated if the individual's ED symptoms (e.g., self-induced vomiting, laxative use, compulsive exercise) are uncontrolled and require 24-h supervision. Other factors present that may signal the need for inpatient or partial-hospitalization treatment include significant risk of suicide or severe self-harm [14, 18]. Both the NICE and APA guidelines underscore the need to consider logistical issues related to the geographic availability of treatment. More specifically, if possible, patients should first receive treatment at facilities within close distance to their home; however, if this is not feasible, admission to a residential or inpatient facility which provides housing may be indicated.

In addition to consideration of established clinical care guidelines, practitioners might also consider recent developments within the literature, particularly related to variables

relevant to treatment outcome at higher levels of care. The majority of the factors outlined by APA—in particular, body weight, purging status and severity, motivation to recover, and co-occurring disorders—have received strong support within the literature as accounting for significant variance in treatment response (for meta-analysis, [31].)

Issues in HLC for EDs

As HLC approaches for EDs continue to be developed and refined, pragmatic and conceptual challenges have emerged that complicate clinical decision-making and provide barriers to the execution of high-quality treatment research. Following is a discussion of various unresolved issues relevant to clinical practice and research at HLC, as well as a summary of recent literature addressing them.

Issue 1: Difficulties Translating Existing Guidelines into Practice

Currently, practitioners have access to several sets of comprehensive guidelines outlining the existing literature on the treatment of EDs and recommendations for how to translate these findings into effective treatment. As referenced above, the American Psychiatric Association [3, 32] and the NICE [18], as well as other international organizations, have published comprehensive guidelines for ED care that are updated on a regular basis and are freely accessible to practitioners. Despite the fact that these recommendations provide a rich resource to the field, recent literature has highlighted several limitations of readily translating these recommendations into practice [33]. Notably, both sets of guidelines total over a thousand pages, which may present a challenge for the feasibility of their use in day-to-day clinical work. Moreover, although the documents thoroughly outline factors and patient variables that are important to consider in making treatment determinations and matching patient to level of care, how best to consider a number of different factors simultaneously—all of which can and do covary—is less clear.

As such, considering ways in which to better facilitate the use of existing treatment guidelines into day-to-day clinical decision-making is recommended. Drawing from work within treatment for substance use disorders [34], Geller and colleagues [33] recently proposed an assessment tool—The Short Treatment Allocation Tool—as an evidence-based algorithm that may aid in simplifying complexities in determining the appropriate level of care for the spectrum of EDs. The tool has a decision-tree format, taking patient medical status, readiness/engagement, and symptom severity into account in determining level of care. Although this tool has yet to be validated on a wider scale, it represents an important effort to

create methods that translate existing knowledge into user-friendly tools available to clinicians and researchers alike.

Issue 2: Research on HLC

It is notoriously difficult to conduct rigorous treatment outcome evaluations for HLC [35]. RCTs, which are typically conducted using short-term outpatient treatment models, generally rely on grant funding to provide patients with free treatment. Waiving the cost of treatment increases patient willingness to be randomized to different treatment conditions and compensates them for time spent completing research assessments. However, given that more intensive treatment modalities (e.g., PHP) have a much higher cost of treatment, obtaining adequate funding sources to cover the cost of treatment at HLC for a trial is often not feasible [36]. In addition to concerns related to cost, outpatient RCTs often employ a waitlist control group, a method not possible for acutely ill patients presenting to HLC. Several studies have used different levels of care as a control group (e.g., [19•]; however, comparisons across levels of care are often challenging given the large number of variables that may covary across sites, independent of the intensity of treatment. Furthermore, despite the fact that existing open trials suggest positive outcomes for PHP and residential treatments, this finding is not surprising, because patients are not considered treatment completers and discharged from HLC until they have achieved certain markers of medical and behavioral stability and weight restoration.

Another critically important issue is determining whether patients relapse after discharge from treatment. Assessment done at the time of discharge may not predict long-term outcome [37]. Those follow-up studies that have been conducted suffer from a substantial dropout rate, particularly for residential treatment [10••]. It is not clear which patients are likely to be lost to follow-up, but it may be that those who are doing worse are less likely to respond to requests for follow-up assessment. Thus, the follow-up data in these studies may not capture people who have poor outcome, and as a result, may inflate data showing positive response to treatment.

Without well-designed RCTs, we have no way of knowing the relative efficacy of HLC. Similarly, the fact that our field has been unable to collect follow-up data on a high percentage of patients after they have undergone treatment in an HLC setting renders the data we do have insufficient.

Issue 3: For-Profit Treatment Centers

Recent years have witnessed a proliferation of HLC treatment centers, and many of these programs belong to a network of facilities in various locations owned by a larger, for-profit behavioral health organization [38•]. Many of these for-profit programs utilize marketing strategies such as small gifts,

travel, and meal payments to cultivate patient referrals [38]. These for-profit programs rarely publish rigorous peer-reviewed research evaluating treatment outcomes, and there is a lack of oversight over the treatment that is provided at a given center. Given the lack of conclusive evidence regarding the effectiveness of these types of programs, there is concern that marketing by for-profit companies may be driving patients' referral to HLC, rather than objective criteria and rigorous evidence about outcomes.

These issues underscore the need for the behavioral health industry to devote a percentage of gross revenue to conduct more scientifically based studies demonstrating patient outcomes following discharge from these HLC. Moreover, it is advised that the industry as a whole develops reporting requirements and oversight for their marketing strategies, so as to decrease the influence of financial interests on decision-making regarding patient care.

Issue 4: Family Involvement at HLC

For adolescents and young adults with EDs, it was once thought that family involvement was harmful and that treating the patient in a hospital, free from family involvement, was advantageous [39]. More recent research has contradicted this idea, and in fact, the gold standard treatment for adolescents with ED is now family-based therapy (FBT). The philosophy in FBT holds that parents should be centrally involved in their child's recovery, providing a sustainable agent of change which persists beyond any treatment context [40]. Nonetheless, despite emerging evidence demonstrating that mechanisms of symptom remission in FBT appear to be driven by empowering parents to take control of their child's eating, higher levels of care are typically characterized by reduced parental involvement in the recovery process [41]. Lack of parent involvement at HLC may be due to several factors, such as the logistical challenges of including parents in treatment settings that may be geographically far from the patient's home. Moreover, providers at HLC are also presented with the challenge of empowering parents while also ensuring thorough clinical management of medical instability and severe ED behaviors [42].

Given the strong evidence, especially for younger patients, that centrally including the patient's family in treatment should be the first line of treatment, the field must attend carefully to integrating family members in throughout the entire recovery process [42, 43]. Integrating the family into HLC is particularly important when considering the volume of adolescents with AN who require non-outpatient based treatment at some stage of their treatment trajectory [44] and the importance of continuity across treatment providers and levels of care [45].

Issue 5: Treatment of Comorbidities

Few cases of EDs present without psychiatric comorbidity [46], and the presence of comorbidity is a robust predictor of poorer long-term outcome (e.g., Fichter and Quadflieg, 2004 [47]) and is associated with more severe ED symptoms (e.g., Spindler and Milos, 2007 [48]). The range and extent of co-occurring psychopathology can pose major challenges to the provision of treatment at a HLC. For comorbid disorders such as substance abuse, post-traumatic stress disorder, or mood disorders, it is important to consider whether to address both disorders simultaneously, or if not, which disorder to treat first. Unfortunately, sequential treatment may lead to worsening or relapse of symptoms in one disorder as the other improves (e.g., [49]), and poorer outcomes for comorbid patients imply that symptoms from one disorder may interfere with recovery from the other [31]. Therefore, integrated care models are recommended, and it has been hypothesized that these models would improve treatment delivery, reduce time in treatment, lessen consumer confusion, reduce overall treatment costs, and improve treatment outcome [50]. Despite the promise of an integrated care approach, few HLC settings are equipped to treat both EDs and clinically significant comorbidities in an integrated fashion [51].

Issue 6: Evaluating the Role of Autonomy in Level of Care and Treatment Outcome

The role of motivation and autonomy in the treatment and recovery of EDs has been the subject of much debate [52–54]. Autonomy in treatment refers to the idea that the patient assumes responsibility for personal behaviors, actions, and choices, and this also grants the right to make informed choices about treatment [55]. Particularly in situations when the patient is unwilling or unable to consent to treatment recommendations, ED treatment providers frequently make critical decisions regarding their patients' care, such as imposed treatment, enforced feeding, and determination of capacity [56]. These situations occur frequently at HLC, where treatment can be more structured and based on behavioral contingencies that reduce patient autonomy. While these highly structured environments may play a critical role in restoring patients to health, there is concern that compulsory or coerced treatment damages trust in therapy regardless of treatment modality and reduces the likelihood that further treatment will be sought in future times of need [57, 58]. Thus, providers must balance the use of structure and consequences intended to help increase motivation, with a responsibility to use the least restrictive interventions possible and uphold patient autonomy [59, 60].

Regardless of treatment setting, patient autonomy can include respecting patient choice, refraining from controlling treatment with external consequences or contracts, and

helping patients become engaged in treatment in a way that is consistent with personal values [52, 61]. Three recent studies have connected higher initial autonomous motivation to greater reduction in eating disorder behaviors over the course of treatment [53, 62, 63]. Autonomy has been shown to be a greater predictor of behavior change for ego-dystonic behaviors, such as binge eating, than ego-syntonic behavior, such as dietary restriction [54, 63, 64]. Based on a review of recent literature on treatment outcome and autonomy, Steiger [61] concluded that treatment is most effective when it is collaborative and relies on personal patient autonomy. Geller and colleagues [65–67] recommend that a thorough assessment of motivation and readiness may be incredibly helpful in treatment planning and identifying level of care necessary for recovery. However, it is also worthwhile to consider the argument that the best index of motivation is patient behavior rather than patient endorsement of perceived motivation [61, 68].

Issue 7: Treatment Approaches for Severe and Enduring Anorexia Nervosa

One area that remains comparatively neglected in terms of recommendations for HLC is the treatment of Severe and Enduring Anorexia Nervosa (SE-AN). Although debate still exists in the field regarding the reliability and validity of the category (e.g., Wildes et al. [69]), the term is used in existing research to refer to a chronic course of AN lasting more than 7 years, although the duration criterion varies depending on the study in question. Three, seven, and ten years have also been used to define SE-AN [70, 71]. Patients with SE-AN generally show worse outcomes when treated with standard treatments for AN (e.g., CBT), and at present, there are no evidence-based treatments that have been proven effective with this population [72]. However, some researchers have suggested that treatment difficulties may be attributed to different needs of this specific population. Strober and Johnson [73] highlight the need for treatment providers to consider the neurobiology and genetic vulnerabilities of SE-AN populations and to modify treatments as indicated. A recent RCT has shown efficacy with adaptations specifically designed to treat severe and chronic patients both with cognitive behavior therapy-anorexia nervosa (CBT-AN) and specialist supportive clinical management (SSCM) as outpatient care [72].

One possibility for better addressing the needs of patients with SE-AN is to use a temperament-based treatment approach, structured around an empirical understanding of the various ways neurobiological mechanisms impact eating behaviors [74]. There is a substantial body of research highlighting powerful genetic risk for developing an eating disorder, and such risk may account for the fact that many people with EDs share common traits, such as perfectionism, obsessiveness, anxiety, and altered reward responses [74]. It

is likely that incorporating findings regarding the neurobiology of AN into medication management and therapy approaches for this population will aid in improving outcomes [75–77]. Although more research is needed, another novel approach to working with SE-AN patients involves empowering the patient to utilize a combination of levels of care [78]. This treatment, known as patient-controlled hospital admission, is intended to quickly halt severe relapses and reduce medical complications in patients with chronic conditions. Patient-controlled hospital admission for patients with SE-AN would not target weight restoration, but rather would serve as an adjunct to outpatient care focused on improving quality of life [33, 78]. Shifting the focus away from weight restoration and toward quality of life is consistent with recent research on treatment approaches for those diagnosed with SE-AN [79].

Conclusions

Despite notable gains in our understanding of the etiology and treatment of EDs over the past several decades, there are a substantial number of questions regarding the treatment of AN, BN, and OSFED in HLC that remain unanswered. Most notably, well-designed controlled trials comparing different levels of care and long-term outcomes for HLC are lacking, as well as analyses evaluating patient variables other than medical status that may indicate a specific level of care. Decision-making processes regarding appropriate LOC are further complicated by complex issues related to the nature of the disorder (i.e., treatment of comorbidities, chronicity), ethical concerns (i.e., consideration of patient autonomy), pragmatic and financial issues (i.e., for-profit treatment centers), and the research-practice gap (i.e., difficulties translating guidelines into practice). To date, it is likely that the most prudent approach for clinicians that treat EDs is to weigh existing treatment recommendations outlined by international organizations alongside patient variables, as well as remain apprised as to recent issues and developments within the literature.

Compliance with Ethical Standards

Conflict of Interest Leslie K. Anderson, Erin E. Reilly, Laura Berner, Christina E. Wierenga, Michelle D. Jones, Tiffany A. Brown, Walter H. Kaye, and Anne Cusack each declare no potential conflicts of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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