

# Preliminary Study of Enhanced Cognitive Behavioral Therapy for the Treatment of Eating Disorders in COVID-19 Pandemic

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## Abstract

The COVID-19 pandemic has had a great impact on the body and psychology of all mankind. Pneumonia caused by COVID-19 leads to death, and the isolation policy to prevent the spread of the virus has led to people's psychological problems, such as depression, anxiety, and eating disorders. This paper first briefly introduces the symptoms, classification, and psychosocial causes of eating disorders. Then, the impact of the COVID-19 pandemic on the general population and patients with eating disorders is described respectively, which is divided into a behavioral level and psychological level. Next, this paper introduces the most effective treatment for eating disorders, enhanced cognitive behavioral therapy, and how psychologists invented CBT-E from the experience and theories of CBT, but it also says that CBT-E face-to-face cannot be carried out in isolation. In the most important part, this paper infers that remote CBT-E can also produce a good therapeutic effect on eating disorders by generating the effectiveness of remote therapy and remote cognitive behavior therapy for eating disorders, which is supported by theory and limited empirical research.

## Keywords

COVID-19, Eating Disorders, Isolation, CBT-E, Remote Therapy

## 1. Introduction

The outbreak of the COVID-19 epidemic has had a great impact on the lives of all human beings. Physically, COVID-19 causes severe respiratory illness and is life-threatening (Huang et al., 2020). Psychologically, the mental health of medical workers and the general public suffers. Lai et al. (2020) illustrated that health

care workers exposed to COVID-19 have a high risk of developing unfavorable mental health outcomes including depression, anxiety, insomnia, and distress. Similarly, Wang et al. (2020) found ordinary citizens suffered depression, anxiety, and stress during the COVID-19 outbreak. In fact, besides Wang et al. (2020), a large number of researchers studied the influence of COVID-19 on depression and anxiety. Previous studies focused on the research and systematic treatment of depression and anxiety during the COVID-19 pandemic. The research content on eating disorders has not been systematically summarized despite their severity and the necessity of treatment, and there are also some puzzles on how to treat them. Especially during the COVID-19 pandemic, we should pay more attention to the eating behavior of ED groups, which can provide some feasible suggestions for improving the eating behavior of the public.

DSM-5 defined eating disorders as abnormal eating behaviors that negatively affect a person's physical or mental health. The psychopathology of ED can be summarized as body image disturbance (Artoni et al., 2021). Patients with eating disorders over-evaluate their shape and weight, which means the patient assigns too much self-worth to shape and weight while neglecting family, work, and other aspects (Murphy, Calugi, Cooper, & Grave, 2020). To be more specific, patients conduct excessive weight control and they deny the negative effects of ED such as weakness and fatigue (Treasure, Claudino, & Zucker, 2010). Anorexia nervosa, bulimia nervosa, and binge eating disorder are three main subtypes of eating disorders. Anorexia nervosa means that restriction of energy intake leads to significant weight loss. This often results in a fear of weight gain and a dysregulated perception of one's weight. Patients with bulimia nervosa engage in inappropriate compensatory behavior after binge eating, such as fasting, taking laxatives, or exercising excessively to prevent weight gain. However, the weight of patients with bulimia nervosa is usually not significantly lower than normal, which is different from anorexia nervosa. Similarly, binge eating disorder can also lead to overeating, but unlike bulimia nervosa, patients with binge eating disorder do not experience compensatory behavior. They will eat until they feel sick and will feel embarrassed and guilty about their binge eating behavior. It can be seen that ED behavior will have a series of effects on people's lives. How does this behavior come about?

Biological, psychological, and sociocultural factors contribute to eating disorders. Studies have shown that eating disorders are easily inherited in families, and twin studies have shown that about 50% of eating disorders can be attributed to genetic factors (Trace, Baker, Penas-Lledo, & Bulik, 2013). Attentional bias and personality traits are the main psychological factors of eating disorders. Patients with eating disorders pay too much attention to weight and shape while ignoring other aspects of life, resulting in cognitive disturbance of personal value, and regarding weight and shape as the most important part of self-worth (Williamson, Muller, Reas, & Thaw, 1999). As for personality traits, Cassin & von Ranson (2005) presented a meta-analysis and summarized that eating disorders are associated with perfectionism, obsessive-compulsiveness, neuroticism, nega-

tive emotionality, harm avoidance, low self-directedness, low cooperativeness, and avoidant personality disorder traits. Perfectionism, in particular, has played a great role in the formation of eating disorders. It plays an important role in forming and maintaining individual social status and social evaluation. Perfectionists doubt their behavior, pay too much attention to mistakes, and are sensitive to the expectations of others. These characteristics may make individuals look for external resources for self-verification (Bardone-Cone et al., 2007). In the case of eating disorders, perfectionists regard to weight and shape as external resources to verify that their social status and social evaluation are positive and successful. Sociocultural factors include child abuse, social isolation, parental influence, and peer pressure. Caslini et al. (2016) argued that an eating disorder is an escape coping strategy to deal with negative emotions and feelings resulting from child abuse. Similarly, an eating disorder is also considered to be a coping strategy to get rid of distressful feelings caused by social isolation (Troop & Bifulco, 2002). For parental influence, Kluck (2010) proved that appearance-focused family culture is associated with eating disorders and body image dissatisfaction will strengthen such association. When parents are too controlling, adolescent children are more likely to suffer from eating disorders because they believe that they can feel control only when they eat food, which can help them alleviate the negative emotions caused by their parents' control. Speaking of peer pressure, Lieberman, Gauvin, Bukowski, & White (2001) verified that peer pressure was a strong predictor of eating behavior and body esteem. People with eating disorders usually report that their friends are on a diet, and the number of friends who are on a diet and the degree of dieting is proportional to the severity of the eating disorder (Taylor et al., 2003).

Although eating disorders are relatively rare in the population, all of them have high mortality (Smink, van Hoeken, & Hoek, 2012). Besides, Hsu (1996) found that eating disorders are one of the most common psychiatric disorders affecting young women in the west. Smink et al. (2012) also noted that eating disorders are most common in adolescent girls aged 15 - 19. Therefore, eating disorders have a serious negative impact on women's development. Although relatively uncommon, eating disorders can also occur in men and the elderly, with their most common symptom, being excessive exercise (Mangweth-Matzek, Kummer, & Pope, 2016). Additionally, there is a great possibility that eating disorders lead to other mental and physical diseases such as substance use disorders, personality disorders, mood disorders, anxiety disorders, and obesity (Mangweth-Matzek et al., 2016). To sum up, an eating disorder is a kind of psychological disease that does great harm to people and should be paid attention to by the masses and academia.

## 2. Effect of COVID-19 on ED

COVID-19 has a great impact on people's mental health, it also affects patients with mental illness. A survey in Wuhan, China shows that COVID-19 causes a variety of psychological problems, such as panic disorder, depression, and an-

xiety (Qiu et al., 2020). As evidence, a cross-cultural literature review summarized that COVID-19 has caused great damage to people's economic life and well-being, which will lead to fear and panic behaviors (Rajkumar, 2020). Zandifar & Badrfam (2020) revealed that unpredictability of the situation, the uncertainty of when to control the disease, the seriousness of the risk, misinformation, and social isolation trigger and aggravate the mental illness. Meanwhile, Zhou et al. (2020) found that due to the social isolation brought by COVID-19, it is more difficult for people to contact relatives and friends and participate in social activities, which leads to people's inability to get timely social help when managers have psychological problems, thus increasing the probability of anxiety and depression of healthy people, but also aggravates the condition of people who already have anxiety and depression. Another cross-cultural literature review by Wang et al. (2020) summarized the mental health impact of COVID-19 on the general population and emphasized the economic impact of COVID-19 and its effects on well-being, as well as the likely high levels of fear and panic behavior, such as hoarding and stockpiling of resources, in the general population. In addition, Qiu et al. (2020) found that adults and the elderly suffer more psychological pain during COVID-19 than adolescents. This is because, first, the incidence rate and mortality of adolescents are very low, and because of isolation and family protection, adolescents have little access to COVID-19; Second, adults often use social networks, and the overwhelming information about COVID-19 will make them more vulnerable to negative effects; Third, the elderly are most likely to be infected and die, so their psychological problems are the most serious. Generally speaking, in the early stage of COVID-19, more than half of Chinese people believed that they were affected by moderate or above psychological influence and anxiety. Among them, women and adolescents have been shown to have the highest levels of stress, anxiety, and depression (Wang et al., 2020).

COVID-19 not only aggravates people's psychological stress and causes anxiety and depression, but also has a behavioral and psychological impact on people's eating behavior and patients with eating disorders.

### **2.1. COVID-19 Impact on Behavior**

At the behavioral level, the most direct impact of COVID-19 is isolation. In China, COVID-19 rapidly spread from a single city to the entire country within a month, to prevent further deterioration of the situation, the Chinese government can only choose to forcibly isolate patients and ordinary people (Wu & McGoogan, 2020). Under such circumstances, ordinary people get fat as they can't go out and do outdoor sports, which leads to concerns about weight and figure, increasing the risk of eating disorders (Rodgers et al., 2020). Increased restricting and binge eating behaviors were found in the general population, but people exercise less than before (Phillipou et al., 2020). Rodgers et al. (2020) also mentioned that social isolation may deprive individuals of social support and

adaptive coping strategies, which increases the risk of eating disorders.

For patients with eating disorders, being isolated at home gives them more opportunities to contact their families, but this is a double-edged sword. On the one hand, establishing more contact with family members can enable patients to get more encouragement and social support, to alleviate the symptoms of eating disorders (Termorshuizen et al., 2020). On the other hand, negative family food-related experiences such as modeling dieting, teasing, and criticism are associated with increased disordered eating (Kluck, 2008). In addition to the influence of family, Phillipou et al. (2020) discovered increased restricting, binge eating, purging, and exercise behaviors in patients with eating disorders.

More importantly, COVID-19 also harms the medical treatment of patients with eating disorders. Due to the fear of COVID-19, many patients and their families are reluctant to enter the hospital for treatment (Davis et al., 2020). Besides, the shortage of medical resources and financial difficulties brought by COVID-19 lead to a huge burden on medical workers and the completion of medical implementation (Davis et al., 2020). Moreover, COVID-19 has led to a change in the world's medical priorities. More medical workers are involved in the treatment of pneumonia caused by COVID-19. Mental diseases such as eating disorders are considered to be of low priority, and the original medical resources will be allocated to other places (Richardson, Patton, Phillips, & Paslakis, 2020). For people with eating disorders, dietary supervision is affected, which can lead to abnormal changes in weight and aggravate negative emotions. Akgul et al. (2021) did research and found that only a few patients reported reasonable meal plans provided by medical workers. Even if there is a meal plan, people with eating disorders will worry that they cannot buy food that meets the plan due to isolation (Termorshuizen et al., 2020).

## 2.2. COVID-19 Impact on Mental Health

The impact of COVID-19 on eating disorders is also reflected on the psychological level. The COVID-19 pandemic has increased individuals' stress, anxiety, and depression (Richardson et al., 2020). A survey conducted in Italy reported that a large proportion of the general population experienced a depressed mood, anxious feelings, hypochondria, and insomnia (Di Renzo et al., 2020). In addition, college students, which are the most vulnerable group to eating disorders, are most influenced by COVID-19 because they are uncertain about the future and they are concerned a lot about academic success, future careers, and social life (Aristovnik, Kerzic, Ravselj, Tomazevic, & Umek, 2020). Compared with the elderly, teenagers and adults will get more information related to COVID-19 through social media, which will aggravate their anxiety (Huckins et al., 2020). Considering gender differences, Browning et al. (2021) revealed that women are more vulnerable to the long-term effects of COVID-19 because, firstly, women have a higher level of psychopathology than men; Secondly, women's tolerance of uncertainty is low, and they are more prone to anxiety and depression; Third-

ly, during COVID-19, women are more likely than men to overeat due to unstable emotions, resulting in weight gain and getting out of shape.

Patients with eating disorders have inflexible eating behaviors with a very small range of foods that they can eat. At this time of food insecurity and panic buying, they usually can't buy the food they need to complete the meal plan formulated by the doctor, which will lead to more psychological stress and abnormal weight changes (Touyz, Lacey, & Hay, 2020). As a result, people with mental illness are more likely to develop symptoms during the COVID-19 pandemic (Wang et al., 2020). And increased eating disorder symptoms, such as invasive thoughts, anxiety, depression, and isolation, reduce their motivation to recover (Vitagliano et al., 2021).

### 3. The Theoretical Basis and Treatment Process of CBT-E

All types of eating disorders share core psychopathology, the over-evaluation of shape and weight, and the ability to control them, which is different from most people's self-judgment criteria (Treasure et al., 2010). For all patients with eating disorders, they regard body size and weight as the most important part of their self-evaluation, while ignoring important factors such as social and personal development. At the same time, control is a common feature of eating disorders. Patients with anorexia nervosa directly control their diet, resulting in abnormal low body weight. Patients with bulimia nervosa over control their diet after overeating can also cause negative effects. The evaluation of shape and weight can be seen as cognitive bias and can be corrected by cognitive behavioral therapy (CBT). This is an important reason why cognitive behavioral therapy can be used to treat eating disorders. CBT is a popular therapeutic approach to a variety of mental health problems and the empirical experience of CBT effectiveness is very sufficient (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012). Linardon & Brennan (2017) even found that after CBT treatment, the quality of life of patients will be improved. CBT is the most widely studied treatment for eating disorders (Linardon, Wade, Garcia, & Brennan, 2017) and is regarded as the best evidence-based treatment for bulimia nervosa and binge eating disorder (Wonderlich et al., 2014). Although there is little relevant research and empirical experience, CBT is also regarded as a cutting-edge treatment for anorexia nervosa (Linardon et al., 2017). There is evidence that CBT can be used to treat most patients with anorexia nervosa and only a few patients relapse (Murphy, Straebl, Cooper, & Fairburn, 2010). In general, CBT is an effective way to treat eating disorders and has a very low relapse rate. Previous studies and theories also explain why CBT can be used to treat eating disorders. However, CBT is not perfect for eating disorders because only a small number of patients can recover through treatment (Wilson, Grilo, & Vitousek, 2007).

The latest research shows that Enhanced Cognitive Behavioral Therapy (CBT-E) is more effective (Fairburn et al., 2009). CBT-E is based on transdiagnostic theory and is derived from CBT for bulimia nervosa. The transdiagnostic theory

holds the opinion that all eating disorders share the same core psychopathology so the original theory of bulimia nervosa can be extended to all eating disorders, and the shared transdiagnostic mechanisms contribute to maintaining the disease (Murphy et al., 2010). Similar to CBT, CBT-E mainly focuses on the process of disease maintenance, that is, the psychopathology of eating disorders. The difference between them is that despite CBT-E adopting a variety of cognitive and behavioral interventions, it modifies thinking and cognition through strategic changes in behavior instead of direct cognitive restructuring, which is widely used in CBT. Besides, CBT-E has adopted new strategies and procedures to improve treatment outcomes. Unlike CBT, which focuses only on addressing the core symptoms of eating disorders, CBT-E also addresses external factors that lead to treatment difficulties, such as perfectionism, low self-esteem, mood intolerance, and social difficulties (Murphy et al., 2010). A systematic review has confirmed the effectiveness of CBT-E to reduce abnormal eating behaviors and core psychopathology in adults and older people (Atwood & Friedman, 2020). Meanwhile, Signorini, Sheffield, Rhodes, Fleming, & Ward (2018) indicated that CBT-E is an effective treatment for adult females with all eating disorders.

Cognitive-behavioral therapy for bulimia nervosa (CBT-BN) is the foundation and starting point for CBT-E. According to the theory of CBT-BN, a dysfunctional self-evaluation system is a key to the maintenance of bulimia nervosa (Fairburn, Cooper, & Shafran, 2003). Patients over-evaluate eating, shape, weight, and their control while underestimating the influence of other aspects of life on personal value. Fairburn et al. (2003) figure out that binge eating originates from patients' strong desire to restrict eating, when they fail to do this, they will feel that they lack self-control, and then give up control and start binge eating, which in turn makes patients more anxious about weight and figure, forming a vicious circle. Accordingly, CBT-BN should focus on both binge eating and dietary restraint, and Fairburn et al. (1995) have proved that CBT-BN has a substantial effect on the frequency of binge eating and purging. However, as mentioned earlier, the efficacy of CBT-BN was not very good at first. Fairburn et al. (2003) then proposed 4 additional maintaining processes that interact with the core eating disorder maintaining mechanisms, they are clinical perfectionism, low self-esteem, mood intolerance, and interpersonal difficulties. Then, Fairburn et al. (2003) realized that eating disorders share common mechanisms. And eating disorders share many clinical symptoms and core psychopathology. Therefore, common transdiagnostic mechanisms may be involved in the maintenance of disease. Fairburn et al. (2003) proposed a network of inter-related maintaining mechanisms that accounts for the persistence of all eating disorders, that is, a central cognitive disturbance together with one or more of four additional mechanisms that serve to maintain the eating disorders. Finally, based on this cognitive-behavioral theory, Fairburn et al. (2003) developed a new transdiagnostic treatment, which is CBT-E, to deal with all forms of clinical eating disorders in outpatient settings.

According to Murphy et al. (2010), there are 4 stages in CBT-E. First of all,

there will be an interview to evaluate the patient's psychiatric problems and assess whether CBT-T is suitable for current patients. More importantly, factors that hinder the effectiveness of treatment should be addressed in this preparation stage, such as depression, drug abuse, and major traumatic events.

Stage one is crucial in the whole treatment because the early success of treatment can lead to a better overall treatment effect (Agras et al., 2000). The goal of stage one is to make the patient gain the motivation for treatment and actively participate in behavior change. To achieve this, the therapist will first engage the patient in treatment and change by helping the patient to be hopeful about change and encouraging the patient to take the lead in treatment. Secondly, the therapist and the patient will jointly create the formulation to help the patient to realize that his behavior is comprehensive and can be changed. Thirdly, the patient needs to establish real-time self-monitoring to get a further understanding of eating problems and be more aware of what he is currently doing so that changes in behavior become possible. Fourthly, the therapist requires the patient to weigh once a week, which allows both of them to have an accurate understanding of weight and addresses the maintaining processes of excessive body weight checking. Fifthly, therapists educate patients about weight and diet and help them change their misconceptions that maintaining eating disorders. Then, the therapist helps the patient establish a regular diet, replace overeating with delayed eating, and remove compensatory behavior. Finally, the treatment will involve significant others to help the patient make changes, or to eliminate those who hinder the patient's change.

Stage two is a transitional stage, which evaluates the first stage of treatment and formulates the preliminary plan for the third stage of treatment. The therapist and the patient will review and summarize the results of the first stage and find out the areas that still need to be improved and new problems. And formulate the treatment plan for the third stage.

Stage three is the main body of treatment. The main objective of this phase is to address the core processes that lead to eating disorders. Several important points need to be addressed. First of all, addressing the over-evaluation of shape and weight includes identifying the over-evaluation and its consequences, enhancing the importance of other domains for self-evaluation, and exploring the origins of over-evaluation. The therapist will first make the patient aware of the wrong way of self-evaluation, then add other aspects of life to the patient's self-evaluation, and finally lead the patient to review the process of changing the way of self-evaluation, pointing out that dietary problems play the most key role in it, and help the patient further away from the thinking framework of eating disorders. Secondly, addressing dietary rules helps patients realize that extreme eating rules have a profound impact on their lives and break them. Thirdly, addressing event-related changes in eating helps patients adjust their emotions caused by various events and eliminate eating disorder symptoms caused by emotional fluctuations. The last one is addressing clinical perfectionism, low self-esteem, and interpersonal problems. As mentioned earlier, these three additional processes



work together with the core mechanism of eating disorders to maintain eating disorder symptoms. Therefore, for patients with these additional processes, the fundamental treatment effect can be achieved only by eliminating them.

Stage four is the final stage of treatment and the main purpose is to reduce the recurrence rate. The patient stops the treatment activities in the previous stages and returns to normal life. Before the end of treatment, the therapist and the patient will work together to make a plan before the follow-up visit to avoid recurrence and encourage the patient to develop new interests. At the same time, patients need to understand that recurrence may occur at any time. What therapists need to do is to let patients know that recurrence is not terrible, but can be solved. Patients can have good strategies to deal with the risk of recurrence after treatment.

Although CBT-E has a strong and complete theoretical basis and has been proved to be an effective, rapid, and low recurrence treatment for eating disorders, most of the existing empirical studies are carried out in the case of outpatients, and [Murphy et al. \(2010\)](#) also clearly points out that the basic background of CBT-E is outpatients. It means that the effect of CBT-E treatment can be guaranteed only when the therapist and the patient have face-to-face treatment in the treatment room many times. However, in the case of the COVID-19 pandemic, not only are many patients isolated at home and unable to go out, but even therapists are unable to participate in face-to-face treatment because of the great pressure brought by COVID-19, which seems to prevent patients with eating disorders from receiving CBT-E treatment during COVID-19 pandemic. During the COVID-19 pandemic, only teletherapy was feasible. Fortunately, recent studies have proved that teletherapy is effective for mental diseases, including eating disorders.

[Raykos, Erceg-Hurn, Hill, Campbell, & McEvoy \(2021\)](#) studied the treatment results of 25 Australian patients with eating disorders through telehealth, and found that the patients had greatly improved their symptoms and emotions of eating disorder, the treatment effect was the same as that of outpatients, and the patients gave a very positive evaluation of the treatment quality. In addition, although some patients are dissatisfied with online medical treatment and require to resume face-to-face treatment as soon as possible, most patients still have a positive attitude towards online medical treatment. More importantly, the treatment results after forced conversion to online treatment show positive results whether the patients are willing or not ([Linardon, Messer, Rodgers, & Fuller-Tyszkiewicz, 2022](#)). These fully prove that telehealth can achieve a positive therapeutic effect on eating disorders.

At the same time, some empirical studies have proved the feasibility of remote CBT. A systematic review has revealed that internet-based cognitive behavior therapy (ICBT) has moderate to high positive effects on a large number of mental health diseases, including depression, panic disorder, social phobia, generalized anxiety disorder, post-traumatic stress disorder, obsessive-compulsive disorder, severe health anxiety, spider phobia, transdiagnostic treatment for an-

xiety, irritant bowel syndrome, female sexual dysfunction, eating disorders, cannabis use and pathological gaming (Hedman, Ljotsson, & Lindefors, 2012). However, only the treatment of depression, panic disorder, and social phobia by ICBT has been proved to be very effective and mature. Although the treatment effect of ICBT on eating disorders has been confirmed to some extent, it has not been officially certified by APA. Thankfully, Hedman et al. (2012) also mentioned that CBT and ICBT have the same therapeutic effect on most mental health diseases and that ICBT is a cost-effective treatment. Besides, online CBT is also effective for medical workers and can help them better participate in treatment work (Weiner et al., 2020). Waller et al. (2020) even summarized suggestions about how to treat eating disorders with remote CBT from 22 clinicians, which shows that remote CBT treatment of eating disorders is becoming a trend and is imperative.

#### **4. Feasibility of Remote CBT-E**

Now we know that both teletherapy and remote CBT can have an impact on mental diseases, including eating disorders. However, as mentioned earlier, the therapeutic effect of CBT on eating disorders is not as good as that of CBT-E, and the treatment of eating disorders by ICBT has not been certified by APA, which shows that ordinary remote CBT cannot achieve a very good therapeutic effect on eating disorders. However, CBT-E has been proved to be more effective in the treatment of eating disorders than CBT in outpatient cases, so remote CBT-E seems to be feasible and necessary in the current COVID-19 pandemic, and can also be popularized in the future. Next, this part will discuss why remote CBT-E is feasible, what modifications it needs to make according to the remote situation, and some evidence to prove that remote CBT-E is effective.

CBT-E is treated through face-to-face communication in the outpatient environment, which can be solved by video call in the remote case. Like face-to-face communication, the therapist and the patient can communicate normally through video and audio, or even nonverbal communication. The therapist can perceive the changes in the patient's tone and action, and the patient can also establish a sense of trust with the therapist (Graves et al., 2017). Apart from touch, there is no difference between a video call and face-to-face communication. As we all know, some patients don't like physical contact, so the lack of touch doesn't affect them. More importantly, through ICBT, patients are more likely to attribute the results of treatment to their efforts and changes rather than the help of therapists, which will help them enhance their sense of self-efficacy, more confident and more motivated to complete treatment (Vallejo, Ortega, Rivera, Comeche, & Vallejo-Slocker, 2015). Apart from enhancing patients' sense of self-efficacy, teletherapy can also make it easier for patients to participate in treatment, and it will also make it easier for therapists to communicate with patients, greatly saving time and money costs. More importantly, through video chat, patients can see their appearance and body on the screen during treatment, which makes it easier for them to accept their imperfections, increase their tolerance for their

body and weight, and then change the evaluation of body and weight to some extent (Murphy et al., 2020). Moreover, medical institutions have begun to train therapists for remote CBT-E (Khera, 2021), which suggests that Remote CBT-E is in preparation. As mentioned earlier, the feasibility of remote treatment and ICBT has been verified. As an improved version of ICBT, remote CBT-E should also have a good therapeutic effect on eating disorders.

Murphy et al. (2020) pointed out some adjustments that need to make to fit remote CBT-E. The treatment process of CBT-E is divided into four stages, in which stage two is the excessive treatment as the main body of the first stage and the third stage. The main task of stage four is to end the treatment and prevent a recurrence. The treatment methods of these two stages in remote CBT-E are consistent with face-to-face treatment. On the contrary, the treatment of some details in stage one and stage three needs to be changed according to the remote situation. In the treatment preparation stage, the therapist needs to evaluate whether the patient is suitable for remote CBT-E, which is usually divided into two steps: first, determine whether the patient meets the treatment requirements of face-to-face CBT-E, and then determine the urgency of the patient's symptoms. If the patient has aggressive behavior, suicidal behavior, or serious emotional problems, remote CBT-E is not recommended. At the same time, in the preparation stage, the therapist needs to ensure that the patient has high participation and enthusiasm, because there may be insufficient motivation in remote treatment compared with face-to-face treatment. In stage one and stage three, Murphy et al. (2020) proposed that only establishing real-time self-monitoring and addressing the exceptional exercising need to be adjusted according to the remote situation. These show that there is no obvious difference between remote CBT-E and face-to-face CBT-E in treatment procedures, and the transition between them is not difficult. However, the additional mechanism of social difficulties needs special attention, because patients isolated at home are less able to contact the outside world and participate in social activities, which may enhance their social difficulty symptoms and continue to maintain eating disorders.

Up to now, there is little empirical research evidence on the effectiveness of remote CBT-E. However, theoretically, it is logical to switch from face-to-face CBT-E to remote CBT-E, and a large number of studies have proved the effectiveness of remote treatment and remote CBT for eating disorders. Since face-to-face CBT-E has a better therapeutic effect than CBT, and the effects of ICBT and CBT are the same, we can infer that remote CBT-E can at least achieve the same therapeutic effect as face-to-face CBT-E. There has been an experiment to study the therapeutic effect of remote CBT-E. Although no complete experimental results have been obtained, it can be seen from the prediction and some data that remote CBT-E can produce good effects on patients with eating disorders (van den Berg et al., 2020).

## 5. Conclusion

In the context of the COVID-19 pandemic, eating disorder, as a mental disease

with high mortality and adverse to adolescent development, has received insufficient attention. Firstly, this paper introduces the definition, classification, and psychological and social causes of eating disorders, and emphasizes the role of perfectionism in maintaining eating disorders. Next, this paper expounds on the impact of the COVID-19 pandemic on the behavioral and psychological aspects of eating behavior and symptoms in patients with the general population and eating disorders. Although the COVID-19 pandemic has some benefits for patients with eating disorders, it has more disadvantages. The next section describes how CBT-E evolved from CBT and how CBT-E works to treat eating disorders. However, under the current COVID-19 pandemic, face-to-face CBT-E is not feasible. Therefore, the effectiveness of remote treatment and remote CBT on eating disorders has been confirmed. It can be inferred that remote CBT-E can also produce good therapeutic effects on patients with eating disorders.

Future research should first confirm the effectiveness of remote CBT-E in the treatment of eating disorders through experiments and actual treatment, and determine what adjustments remote CBT-E needs to make according to face-to-face CBT-E through the treatment process. More importantly, we need to know how the additional maintenance mechanism of social difficulties can be solved in remote conditions, to completely solve the eating disorder. Finally, existing studies have proved the effectiveness of CBT-E and remote CBT for eating disorders, and some psychologists have proposed the importance of remote CBT-E under the COVID-19 pandemic, so remote CBT-E can be used as a practical medical means to treat patients with eating disorders in the future.

### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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