Examining Studies on the Effectiveness of Cognitive Behavioral Therapy in Treating Eating Disorders: A Look at Both Western and Asian Studies

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Abstract. This paper explores the effectiveness of cognitive behavioral therapy (CBT) in the treatment of eating disorders, looking at the findings of the past three years by examining Western and Asian studies. Eating disorders (EDs), as a global health problem, cover a range of serious mental health conditions marked by abnormal eating patterns, unhealthy food-related behaviors, and intense or obsessive obsession with weight and body shape.

Eating disorders are a global health problem that covers a range of abnormal eating patterns and unhealthy behaviors related to food. It may also contain strong concerns about weight and body shape. The purpose of this article is to discuss the effectiveness of cognitive behavioral therapy in the treatment of eating disorders. The article first reviews the relevant western and Asian studies and reviews a research result in the past three years. In addition, the research method of this paper is to conduct a comprehensive search on the Web of Science, PubMed and UB libraries and other databases, and the search keywords mainly include "cognitive behavioral therapy", "eating disorder", "anorexia", "bulimia", "bulimia", "effect", "Western" and "Asian". The search time range is 2020 to 2023 to ensure that the latest and most current articles are searched. In addition, the assessment tools used in these studies mainly included clinical impairment Assessment (CIA), Eating disorder examination (EDE), EDE-Q, Depression Anxiety Stress Scale (DASS), Short Symptom List (BSI, Italian version), and Mood and Anxiety Symptom Questionnaire (MASQ). The coverage shows a more comprehensive assessment of clinical impairment, eating disorder symptoms, and anxiety symptoms in the context of the CBT-E intervention. However, there are limitations to the certainty of results in this literature due to differences between studies in design, follow-up period, sample size, and patient diagnosis and age. Future studies should further discuss the effects of treatment in different cultural contexts in order to more accurately understand a potential impact in treatment.

Keywords: Cognitive Behavioral Therapy (CBT), Eating Disorders, Anorexia Nervosa, Bulimia Nervosa.

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1 Introduction

Nowadays, eating disorders (EDs for short) are a significant and escalating global health issue that encompasses a range of severe mental health conditions marked by abnormal eating patterns, unhealthy behaviors linked to food, and intense distress or preoccupation with body weight and shape (Romano, 2021)[1]. Some reaseraches have shown that people suffering from EDs would experience extreme emotions, attitudes, and behaviors around eating and weight (Romano, 2021). In addition, if not treated appropriately, eating disorders can have significant psychological, physical, and social consequences, and can be life-threatening (Stein, 2007)[2]. In specific, accroding to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) there are three spectrums of eating disorders which are anorexia nervosa, bulimia nervosa, and binge eating disorders (APA,2013)[3].

According to related research data in the Western countries especially in the United States, there is a trend of diagnosis increasing of EDs for both men and women. In terms of anorexia nervosa, the lifetime prevalence of anorexia nervosa is 0.6%, with 0.3% of men and 0.9% of women being affected (Schumann,2009)[4]. In addition, the prevalence of bulimia is 1.0%, with 0.5% of men and 1.5% of women being affected (Schumann,2009). Between 2000 and 2018, some studies reveal that the average lifespan of EDs for women is 8.4%, with a range of 3.3% to 18.6%. Meanwhile, for men, their EDs' estimated lifespan is 2.2%, with a range of 0.8% to 6.5% (Galmiche, 2018)[5].

So, it can see there is a surging demand of the EDs treatment, the validity and reliability of the treatments need to be paid more attention and be tested by professionals. Over the past few decades, treatment for eating disorders faced various challenges, and researchers still working on most of them. One of the treatments is the outpatient treatment and this treatment success rate (OUTP) ranges from 50% to 80% in America (Schumann,2009)[6].In addition, numerous research studies and clinical trials have demonstrated the effectiveness of CBT in treating eating disorders (Agras, 2019)[7]. The concept of CBT isa form of psychotherapy designed to help people identify more negative thought patterns in their minds and effectively switch to positive ones(Simmons & Griffiths, 2017)[8].

Fig. 1. Global Eating Disorder Trends

A simple illustration(Fig.1) reflecting the global trends in eating disorders. it highlights the prevalence of eating disorders globally

The cognitive behavioral treatment for bulimia nervosa (CBT-BN) was first mentioned in 1981 (Fairburn, 1981). [9]Fairburn proposed that CBT is an evidence-based treatment for eating disorders, specifically designed to address the cognitive and behavioral aspects that maintain some conditions, it has been wildly applied and supported (De, 2018). Compared to medication and other psychotherapies, CBT has been found a more effective treatment approach for eating disorders, except for anorexia nervosa, (Agras, 2019). While anorexia nervosa, may pose greater challenges for treatment and research compared to bulimia nervosa, extensive psychotherapeutic studies have been conducted on it (Gu et.al., 2021)[10] have revealed that CBT-E holds the potential as a viable therapy option for both adults and adolescents suffering from anorexia nervosa in outpatient settings in China. In addition, a new version of CBT, known as enhanced cognitive-behavioral therapy (CBT-E), also addresses psychopathological processes in eating disorders in general or certain subgroups of EDs patients. CBT-E involves 20 individual treatment sessions over 20 weeks, the first 4 weeks being common to either a "focused" version or a "broad" version(Fairburn, Cooper, & Shafran, 2008)[11].

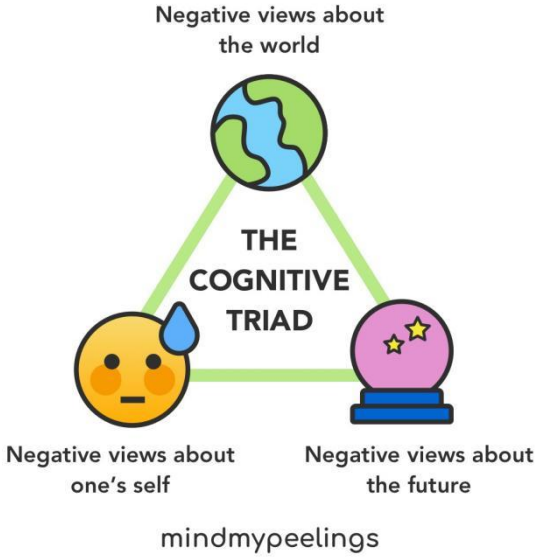

Fig. 2. Basics of Cognitive Behavioral Therapy (CBT)

A concise illustration(Fig.2) outlining the fundamental principles of Cognitive Behavioral Therapy (CBT).

with the recognition and treatment of eating disorders are increasing in Asian societies as well, some researches are being conducted to determine the applicability and effectiveness of CBT used in Asia.In 2020 Chisato Ohara et.al conducted a randomized controlled trial comparing CBT-E which is the enhanced version of CBT to treatment as usual (TUA) for bulimia nervosa in Japan. Participants will be randomly assigned to

either CBT-E or TAU groups. It can see that this study has provided valuable information about the effectiveness of CBT-E for bulimia nervosa in Japan. This literature review aims to examine the studies on the effectiveness of CBT in eating disorder treatment in both Western and Eastern populations in the past three years. [12]

2 Rationale

This paper examines the effects of cognitive behavioral therapy (CBT) in the treatment of eating disorders, and compares the heterogeneity of outcomes in Europe, the United States and Asia, in order to explore the potential impact of cultural differences on the efficacy of CBT. The study design was a longitudinal comparison that examined and summarized eating disorder treatment studies in Europe, the United States and Asia over the past three years to understand the long-term and short-term effects of CBT on patients. In addition, the analysis focused on cultural differences, mainly by comparing the cultural context of the study, to evaluate the differences in the application of CBT therapy in Europe, the United States and Asia. Finally, the exploration of sample characteristics refers to the comparative analysis with the cultural background of the research sample as the control variable. For example, the Western tendency of individualism and the Asian tendency of collectivism may affect the therapeutic effect. The third point of literature review mainly includes the analysis of the relevant literature on the use of CBT in the past three years, and the summary of the research purpose, sample size, data evaluation and conclusions. The samples are differentiated according to European, American and Asian cultural backgrounds. From the aspect of data collection, data were extracted from selected studies, including duration of treatment, treatment effect, sample characteristics, etc. It was noted that European, American and Asian studies were classified as different data sets. From the perspective of cross-cultural comparison, we focus on analyzing the effects of CBT in Western and Asian studies, focusing on the initial response and long-term maintenance effects after treatment. Explore the potential influence of cultural factors on treatment outcomes. Finally, this method will focus on limitation assessment, focusing on the limitations of the analysis of the study, including sample representation, cultural adaptability, etc. In addition, factors causing difficulties in cross-cultural research should also be taken into account. The interpretation of the structure focuses on post-analysis demerits, highlighting the heterogeneous effects of CBT in different cultural contexts in Europe, America and Asia, especially due to different cultural sensitivities in different regions. At the same time, explore the factors that may explain the difference, such as traditional ideas, living environment factors, etc. Finally, recommendations are made for practical applications based on the findings of the study, especially approaches that take cultural factors into account when promoting CBT for eating disorders. Finally, it focuses on summarizing the main findings of comparative research and emphasizes the importance of cross-cultural research. Suggests directions that future research could explore in depth to more fully understand the effects of CBT in the treatment of eating disorders.

3 Search Strategy

To identify relevant studies on the effectiveness of CBT in treating eating disorders in Western and Eastern populations a thorough search of databases including the Web of Science, PubMed, and the UB library was conducted. Keywords used in the search include "cognitive behavioral therapy", "eating disorders", "anorexia nervosa", "bulimia nervosa", "binge eating disorder", "effectiveness", "Western", and "Eastern". The search was restricted to the timeline from January 2020 to 2023, [13]ensuring the inclusion of the most recent and up-to-date literature in the review.

3.1 Data Review

In the review, the studies encompassed a diverse diagnostic sample, incorporating individuals with Anorexia Nervosa (AN), Bulimia Nervosa (BN), Binge Eating Disorder (BED)or eating disorder not otherwise specified, two studies included an exclusively BED or BN, five studies used AN as a sample, and one study BN sample.

Fig. 3. A visual representation elucidating eating disorders.

The Fig 3 highlights the distress and preoccupation with body weight and shape.

The age of the patients ranged from 13 to 77- years old with two studies including an exclusively adolescent sample (from 13 to 18- years old) and only one study including adolescent samples. [14]

Notably, all studies under consideration were crafted within a Cognitive Behavioral Therapy-Enhanced (CBT-E) framework. Among them it can see that four studies adopted a randomized controlled trial protocol, while three studies employed a quality-assessment protocol. The rest of the studies used naturalistic study, network analysis, consecutive cohort study, outpatient case series, quality - assessment study, on-randomized effectiveness trial. So, it can conclude that this methodological approach enhances

the comprehensiveness of the review, providing insights into the effectiveness of CBT-E across different research paradigms.[15]

The assessment tools employed in these studies primarily comprised several well-established scales. These include the Clinical Impairment Assessment (CIA) (Bohn et al, 2008); The Eating Disorder Examination (EDE) (Fairburn et al., 2015); The EDE-Q (Fairburn & Beglin, 2008); the Depression Anxiety and Stress Scales (DASS) (de Beurs et al., 2001); Brief Symptom Inventory (BSI, Italian version) (De Leo et al., 1993); The Mood and Anxiety Symptom Questionnaire (MASQ) (de Beurs et al.,1991).It can see that these carefully selected scales cover a range of psychometric domains, which can ensure a comprehensive evaluation of clinical impairment, eating disorder symptoms, and anxiety symptoms within the context of CBT-E interventions.[16]

Finally, this article should highlight that the conclusiveness of the results is limited by the variation among studies, in terms of their design, follow-up period, sample size, and patients' diagnosis and age.[17]

3.2 Efficacy of CBT

Based on the articles we reviewed, the effectiveness of CBT and CBT-E is tested by comparing them with other valid eating disorders treatment methods and using questionnaires to compare pre-treatment scores and the ones at the end of treatment (EOD) even in the follow-up section. Certain studies within the review specifically target particular eating disorders,for instance,Binge Eating Disorder (BED). In contrast, others assess the effectiveness of both Cognitive Behavioral Therapy (CBT) and Cognitive Behavioral Therapy-Enhanced (CBT-E) in a more generalized context of EDS.[18]

In three randomized controlled trial protocol studies using CBT-E and other treatment methods, the analysis of the outcome measures showed that all treatments to a certain extent, compared to dialectical behavioral therapy (DBT) and family-based treatment (FBT). CBT-E in the treatment of eating disorders have a superior outcome in the treatment of eating disorders which suggested that CBT-E is a effective therapeutic approach for individuals with such conditions.

The study by Melisse, B et al (2022) is the first study to report CBT-E effectiveness in adult patients diagnosed with BED compared with other eating disorders. Furthermore, additional analyses were performed to assess whether OSFED classification determined group categorization. In terms of feasibility, the present study assumed that CBT-E can be delivered in daily clinical practice in a specialized eating disorders center. Moreover, CBT-E appeared to be a suitable eating disorder treatment for adults with a BMI between 17.6 and 39.9.

In the following parts, the review will further discuss the effectiveness of CBT for Eating Disorders (ED) in general and for Anorexia Nervosa (AN) and Bing Eating Disorder (BED)/ Bulimia Nervosa (BN) separately.

3.3 CBT and Eating Disorders (ED)

Eating disorders are described as clinical mental health issues characterized by abnormal eating patterns, severe distress, or obsession with body form and weight, as we discussed in the introductory section. One of the most essential factors to cause and maintain eating disorders is emotion dysregulation including not only mood intolerance but also ranging from emotion recognition to using appropriate coping skills. (Nora, 2021). That is why adolescence, a period of emotional turmoil, is the peak for the onset of eating disorders (Nora, 2021). According to the narrative review (Nora, 2021),[19] the CBT-E model of eating disorders considers the overvaluation of weight/shape and eating, inducing an inability to cope appropriately with certain emotional states, shared by all eating pathologies. This section's ensuing paragraphs will address how research indicates that CBT or CBT-E is beneficial for treating eating disorders in general.

In general, CBT-E a faster response model than TAU shows significant improvement in the first six weeks of treatment, and its effect last longer for eating disorder behaviors (Msc et al., 2020). [20]To quantify the severity of eating disorders behaviors, many researchers use a self-report questionnaire Disorder Examination Questionnaire (EDE-Q) including behaviors such as binge eating and purging. According to Melisse, B's study in 2022, he claims that after CBT-E treatment, there was a significant improvement in the EDE-Q between the start and end of treatment (EOT) and start and 20 weeks follow-up (Melisse et al., 2022).

What's more, the improvement in BMI is shown in treatments of all three eating disorders. Unlike BMI improvement in the CBT treatment for AN which treatment is focusing on weight gain, BMI improvement of CBT for BED counts as an additional advantage but not the purpose. In the study of CBT in BED, recovered patients reached a significant, but small decrease in BMI although the therapy focused on the prevention of weight gain but not weight loss (Riel et al., 2023). Consistent with earlier research cited in the piece, the gains focus on issues related to eating, shape, and weight in general, as well as susceptibility to hunger and cognitive control overeating, but not weight reduction specifically(2023; Riel et al).Overall, (between the start and 40 weeks of treatment) CBT-E was significantly less intensive and CBT-E shows an early behavioral change that offering twice-weekly sessions at the start could explain the faster response to CBT-E in the first phase of treatment (Msc et al., 2020).[21]

3.4 CBT and Anorexia Nervosa (AN)

Anorexia nervosa (AN) typically involves having a low body weight, restricting food intake, experiencing a distorted body image, being afraid of weight gain, and desiring thinness above all else (Treasure et al., 2015). So one of the concerns for patients experiencing AN is weight loss so CBT for AN is focusing on nutrition therapy and weight gain. Compared to TAU, patients assigned to the CBT-E treatment group show a higher number of regaining weight (van den Berg et al., 2022). Some studies are showing the effectiveness of CBT-E for severe and extreme AN. At the end of the treatment, twenty patients showed considerable weight gain and significantly reduced scores for clinical impairment (Calugi et al., 2021). Effectiveness and effect duration are more advanced

for severely ill adult and adolescent patients with AN, according to a study on CBT-E in adolescents and adults (Grave, RD. et al., 2020).[22] The BMI of the patients receiving inpatient care was more than 18.5 kg/m2 (Frostad et al., 2021).

3.5 CBT and Binge Eating Disorder (BED)/ Bulimia Nervosa (BN)

Symptoms of BN, including dietary restraint, excessive exercise, and purging behaviors, are understood to stem directly from the core psychopathology, in that they are conceptualized as behavioral attempts to control weight and shape. The overvaluation of shape and weight has been termed the "core psychopathology" of BN. (Fairburn, 1985). Furthermore, the way in which people on a BN diet behave highlights binge eating. Similar to patients with BN, people with BED syndrome also experience episodes of binge eating, but they do not participate in compensatory behaviors like self-inflicted vomiting, abusing laxatives, diuretics, or diet pills, fasting, or excessive exercise. Such patients are common among the obese in weight control programs (Dingemans,2002).[23]

To estimate binge eating which is the major symptom in both BED and BN, researchers use Eating Disorder Examination Questionnaire (EDE-Q) dependent on self-report which generates frequency ratings for key eating behaviors. Higher scores on EDE-Q represent more severe eating disorder pathology. Comparing the EDE-Q scores before and after therapy sessions, the researchers discovered that the recovered group (44.3%) had a mean score that decreased from 5.92 to 0.5 (Riel et al., 2023), indicating a remission of binge eating.[24]

As we mentioned above, mood intolerance is one of the eating disorders' maintenance factors. Both binge eating and purging are used as attempts to modulate mood and release stress by concerning body shape. However, the fear of weight gain decreased across CBT treatment and the change is more salient for the BN-spectrum which reports higher fear of weight gain at the baseline than the BED group (Butler et al., 2023). Also, the study done by Hay, P in 2022 supports that CBT-E helps reduce stress, improving mental health-related quality of life, and reducing binge eating severity (Hay et al., 2022).[25]

3.6 CBT in Western and Asian countries

Medical care can roughly be divided into two types, inpatient and outpatient. Inpatient occurs when a patient is admitted into a hospital while outpatient refers to medical care that is received while a patient is not admitted into the hospital. All the articles we used in this review did studies on both inpatient and outpatient groups. However, when we searched for the articles, we found that most studies done in Western countries used outpatient groups as a sample unless their studies focused on severe and extreme situations (eg. Frostad et al., 2021). [26]

Curiously, the majority of treatments, including nutrition therapy and drug use, are still reserved for inpatient patients because psychological diagnosis and treatment are still in their infancy in Asian nations.[27]

Another perspective to explain the difference between CBT and CBT-E used in Western and Asian countries is collectivism and individualism. Group or family CBT is more common in Asian countries that are collectivist, like China. However, the majority of the research that we located for Western nations concentrated more on individual changes. In China, two studies (Gu L et al,2021; Chen, J et al,2021) [28]explored the feasibility and efficacy of group cognitive behavior therapy (G-CBT) adapted from enhanced cognitive behavior therapy for eating disorders (CBT-E) in Chinese AN patients. Both G-CBT and IOT groups showed significant improvement in eating pathology and associated psychopathology (ps < .001) throughout treatment, but no significant difference in symptom improvement was found between the two groups (ps > .05). [29]Over the final two months of treatment, G-CBT produced additional significant improvement in ED psychopathology; its overall therapeutic effect was influenced by baseline weight and early symptom improvement. Preliminary findings from this open-label trial suggest that G-CBT adapted from CBT-E is feasible in an outpatient setting and as effective as IOT in facilitating weight regain and reducing psychopathology in Chinese AN patients.

4 Discussion

CBT-Enhanced (CBT-E) is a specific form of CBT suitable for the full range of eating disorder diagnoses (Fairburn, 2008). It is a transdiagnostic treatment suitable for the full range of eating disorders (EDs) (de Jong et al., 2020). The goal of this study is to examine the last four years of CBT-E use for eating disorders, assess the treatment's efficacy in various contexts, examine how CBT-E is applied in Asian nations, and offer workable suggestions for CBT-E's continued successful application.

Previous reviews on the application of CBT-E for eating disorders from 2008 to 2019 (Atwood & Friedman, 2020) concluded that CBT-E is an efficacious and effective treatment for adults and older adolescents with a range of eating disorder diagnoses.

The present review actualizes the literature on CBT-E for EDs in both Western and Eastern countries. In the 15 studies, we found that the therapeutic effect of CBT-E was reflected in many dimensions, and it yielded statistically comparable results in changes in BMI, recovery of anxiety and depression, significant gains in self-esteem, remission rates, reduced binge eating and purifying behaviors, and improved severity of core psychopathology (eg. Melisse et al.,2022; de Jong et al., 2020; Le Grange et al., 2022; Hay et al.,2022). Better treatment effects and a longer maintenance period are two of CBT-E's advantages over general treatment measures.

It is worth noting that CBT-E is not widely used in Asian countries, and this review makes an analysis of the obtained application of CBT-E in China (Chen et al., 2021) and Japan (Ohara et al., 2020). We conclude that CBT-E is also accepted by Asian patients and considered beneficial. It was relatively statistically significant in remission of EDs, psychopathology level, family functioning, and treatment satisfaction.

As to why CBT-E is not widely used in Asian countries, we have analyzed the reasons in combination with the existing literature. One possible reason is that in China, clients do not fully trust the therapist profession and they feel that the level of treatment

was not sufficient to relieve their symptoms. Conversely, unlike therapists in Western countries, therapists are well-trained, highly educated, and trustworthy. A study questioning the effectiveness of CBT-E (Msc et al., 2020) illustrated the occupational background of therapists in Western countries, emphasizing that all CBT-E therapists are psychologists, psychiatrists, registered nurses, or social workers. They were not located in Asia even after undergoing arduous training and gaining over two years of work experience. The second reason is that group or family therapy is more common in Asian countries because most of them are collectivist.

The strength of this study is that we summarize and support the effectiveness of CBT-E and the main outcome measures through the review of the relevant literature in recent years and analyze the application in Asia. This provides a possible reference for the application of CBT-E in Asian countries.

One of the limitations of the current study is due to the time limitation, tzhe review's narrow focus on studies conducted between 2020 and 2023 means that it ignores compelling research, and its discussion of CBT-E's applicability and efficacy in treating eating disorders is constrained.

Secondly, we only studied CBT-E, and there are many other dimensions of CBT treatment for ED. In addition, even for CBT-E, Because of the effect of the pandemic period which started in 2019, the research within the time frame are not sufficient as in other years. Besides, there is also online CBT-E intervention on CBT-E and other CBT-E (Grave et al., 2023), so the results obtained in our study will be affected, and future research on the application of CBT in broader dimensions is needed.

In addition, since we have only found 3 studies on the application of CBT-E in Asian countries (eg. Chen et al., 2021; Ohara et al., 2020; Gu et al., 2021), Because of the small body of literature that has been published, both our analysis of the application and impact of CBT-E in Asia and our own findings may not apply to other regions.

Besides, most of the articles mentioned in the review used females as the sample (Frostad et al., 2021; Butler et al., 2023), and considering the WERID group (Heinrich et al., 2010), some studies cannot generalize to the public. This is also an urgent problem for future studies.

Limitation.

However, there is some insufficient clarity about the treatment of CBT-E. Many studies have shown that the treatment of CBT-E has the same effect as other treatments methods so there lack of significant advantages of CBT-E to separate it from other therapies (eg. Gu L et al., 2021; Chen et al., 2021; Le Grange et al., 2022). Second, the barriers to CBT-E promotion include the high financial cost of treatment (Melisse et al., 2023) and the protracted nature of treatment requirements (van den Berg et al., 2022). Such high-cost and time-consuming treatment would exclude the non-WERID group who do not have extra money or accessibility to such advanced treatment programs. The implementation of CBT-E still has a long way to go.

5 Conclusions

Taken together, results from this systematic review support the implementation of CBT-E as a transdiagnostic treatment for adults and older adolescents with eating disorders. To investigate the accessibility and clinical efficacy of CBT-E in the treatment of eating disorders, additional high-quality research is necessary.

Besides, investigators can avoid WERID whenever possible, extending the study population to a wider population, for example, more male patients. For Asian countries, more studies on CBT-E for eating disorders are needed to support its effectiveness. And researchers can try to explore the possibility of CBT-E as an effective means of promotion in Asian countries.

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