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Effectiveness of Third Wave Therapies for Treatment of Obsessive-Compulsive Disorder: A Review

Obsesif-Kompulsif Bozuklukta Üçüncü Kuşak Terapilerin Etkililiği: Bir Gözden Geçirme

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Abstract

In the treatment of obsessive-compulsive disorder, the effectiveness of two main treatment approaches, pharmacotherapy and cognitive behavioral therapy (CBT), has been proven. However, the high rates of drop out from treatment and the presence of residual symptoms after CBT direct researchers to look for different treatment approaches. Therefore, emerging developments show that Third Wave Therapies are promising. The aim of this review is to summarize the theoretical background of Third Wave Therapies used in the treatment of obsessive-compulsive disorder and to review the effectiveness of these approaches and examine these studies in terms of methodological perspective and therapy content. In accordance with this purpose, studies which examine the effectiveness of Acceptance and Commitment Therapy, Mindfullness-Based Therapy, Metacognitive Therapy, Schema Therapy and Dialectical Behavior Therapy which are published in English/ Turkish between 2004-2020 years and accessed from 5 databases: Ebscohost, Ulakbim, Google Scholar, Science Direct and Web of Science are included. As a result of this review, it has been determined that Third Wave Therapies generally reduce obsessive-compulsive symptoms and result in both reductions on depression, anxiety and stress symptoms and improvements on skills such as self-compassion and mindfulness. Based on these results, it was concluded that the first evidences about the effectiveness of Third Wave Therapies in the adult population in the treatment of obsessive-compulsive disorder begin to accumulate, but there is a need for randomize clinical controlled trials which is performed with larger samples and compared with CBT, Exposure and response prevention or pharmacotherapy.

Keywords: Obsessive-compulsive disorder, acceptance and commitment therapy, mindfulness, meta-cognition, waves

Öz

Tekrarlayan obsesyonlar ve/veya kompulsiyonlar ile karakterize olan obsesif-kompulsif bozukluk tedavisinde ilaç tedavisi ve bilişsel davranışçı terapi (BDT) olmak üzere iki ana tedavi yaklaşımının etkililiği kanıtlanmış görünmektedir. Ancak tedaviyi yarıda bırakma oranlarının yüksek olması ve BDT sonrası kalıntı belirtilerin görülmesi, araştırmacıları farklı tedavi yaklaşımlarına yöneltmiştir. Bu bağlamda ortaya çıkan yeni gelişmeler, 3. Kuşak Terapiler açısından umut vermektedir. Bu gözden geçirme çalışmasında; obsesif-kompulsif bozukluğun tedavisinde kullanılan 3. Kuşak Terapiler'in kuramsal alt yapısının özetlenmesi, bu bağlamdaki terapi yaklaşımlarının etkililiğine dair araştırmaların yöntemsel ve terapi süreci açısından gözden geçirilmesi amaçlanmıştır. Bu amaçla bu gözden geçirme çalışmasında; 2004-2020 yılları arasında İngilizce/Türkçe dilinde yayınlanmış ve Ebscohost, Ulakbim, Google Akademik, Science Direct ve Web of Science olmak üzere 5 veri tabanından ulaşılan Kabul ve Kararlılık Terapisi, Bilinçli Farkındalık Temelli Terapi, Üstbilişsel Terapi, Şema Terapi ve Diyalektik Davranış Terapisi'nin obsesif-kompulsif bozukluk'taki etkililiğini inceleyen araştırmalara yer verilmiştir. Yapılan gözden geçirme sonucunda, 3. Kuşak Terapilerin genel olarak obsesif kompulsif belirtileri azalttığı görülmüştür. Buna ek olarak, depresyon, anksiyete ve stres belirtilerinde azalma; öz-şefkat ve bilinçli farkındalık gibi becerilerde ise artış sağladığı belirlenmiştir. Buradan yola çıkarak, obsesif-kompulsif bozukluk tedavisinde 3. Kuşak Terapilerin yetişkin örneklemindeki etkililiğine dair ilk kanıtların birikmeye başladığı ancak daha büyük örneklemler ile bilişsel davranışçı terapi, maruz bırakma ve tepki önleme ya da ilaç tedavisi ile karşılaştırmalı olarak yapılan seçkisiz kontrollü klinik çalışmalara ihtiyaç olduğu sonucuna ulaşılmıştır.

Anahtar sözcükler: Obsesif-kompulsif bozukluk, kabul ve kararlılık terapisi, farkındalık, üstbiliş, kuşaklar

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ACCORDING to the Global Burden of Diseases Study conducted in 2013; Anxiety Disorders, including Obsessive-Compulsive Disorder (OCD), are among the main causes of disability in the top 10 (Mokdad et al. 2016). Anxiety Disorders are ranked 6th among factors contributing to non-fatal diseases among all regions of the World Health Organization (World Health Organization 2017). Among the Anxiety Disorders, OCD is one of the disorders with often severe consequences, and patients hospitalized for anxiety are most likely diagnosed with OCD (Steketee and Barlow 2002).

OCD, which was previously included in the Anxiety Disorders class in DSM-IV (American Psychiatry Association 2000), was included in a separate class on its own under the name of Obsessive-Compulsive Disorder and Related Disorders in DSM-5. According to this; OCD; It is a mental disorder characterized by obsessions, compulsions or the presence of both obsessions and compulsions (American Psychiatry Association 2013). Obsessions in DSM-5; it has been defined as repetitive, unwanted and persistent thoughts, images, or impulses experienced as intrusive. Compulsions; repetitive behaviors or mental actions that an individual feels compelled to do in the face of an obsession. Compulsions are usually carried out to prevent a feared event or to alleviate distress. However, compulsions are excessive or unrealistic in relation to the situation intended to prevent (American Psychiatry Association 2013).

The 12-month prevalence of OCD, which is characterized by repetitive obsessions and/or compulsions and seen to be associated with significant impairment in functionality (Gururaj et al. 2008, Ruscio et al. 2010), is reported as 1.2% in DSM-5 (American Psychiatry Association 2013). In the National Comorbidity Survey Replication (2010), the lifetime prevalence was found to be 2.3% and the 12-month prevalence as 1.2% (Ruscio et al. 2010). Similarly, in a general population survey study conducted with individuals over the age of 18 in our country, the 12-month prevalence rate was found to be 3% (Çilli et al. 2004).

The first line pharmacotherapy for OCD is the selective serotonin reuptake ınhibitor (SSRI) and the effectiveness of these drugs in the treatment of OCD has been proven for years (Dougherty et al. 2004). However, OCD is a chronic disorder that requires a chronic treatment, and drug cessation attempts in individuals diagnosed with OCD appear to result in relapse and decreased quality of life (Fineberg et al. 2012). It is also stated that 80-90% of the individuals diagnosed with OCD benefit from Behavior Therapy (BT) (Ersoy et al. 2003). The main feature of BT, also known as the first wave, is its focus on classical conditioning and operant learning (Kahl et el. 2012). The main technique used for symptom reduction in OCD's Behavioral Therapy is exposure and response prevention. However, difficulties such as the high level of anxiety caused by Exposure and Response Prevention (ERP) during the exposure phase have led some clinicians and researchers to turn to Cognitive Therapy (CT) techniques that involve less long-term exposure to fear cues and help in the treatment of other anxiety disorders (Abramowitz 2006).

Cognitive Behavioral Therapy (CBT); it consists of a combination of Behavioral Therapy and Cognitive Therapy techniques, also called second wave, that focus on information processing (Kahl et al. 2012). CBT; it is seen as the first-line treatment for OCD in adults and children for reasons such as its efficacy, maintenance of therapeutic gains after treatment, tolerability and safety (Brauer et al. 2011). NICE (2006) recommends for adults diagnosed with OCD and mildly impaired functionality, initial treatment should be initiated with low-intensity psychological treatments (including exposure and response prevention); SSRI or intensive CBT should be offered to those with moderately impaired functionality.

It is seen that the response to pharmacotherapy is insufficient and the inclusion of CBT is useful in the majority of individuals diagnosed with OCD. In this direction, in a systematic review aiming to examine the effectiveness of CBT in individuals with a diagnosis of OCD resistant to pharmacotherapy; it was determined that treatment response in CBT was quite good, and in all reviewed studies, significant reductions were obtained in OCD symptoms after CBT in individuals who had previously received medication but did not have sufficient response (Sijercic et al. 2020). Similarly, in individuals diagnosed with OCD who have residual symptoms after pharmacotherapy, CBT along with Exposure and Response Prevention (ERP) seems to be effective in reducing OCD symptoms (Simpson et al. 2008).

Although the most commonly used treatments are SSRI, ERP and CBT, these approaches also have limitations. As stated by Dougherty et al. (2004), most of the pharmacotherapy studies for OCD aim to reduce the The Yale–Brown Obsessive Compulsive Scale (Y-BOCS) score 25-30% below the baseline score as a measure of treatment response. Therefore, most of the patients reported to be responsive to pharmacotherapy still show significant residual symptoms. However, in the result of study done by Ong et al. (2016), it was stated that the weighted rate of drop out from treatment in ERP was 14.7% and the rate of patients who refused ERP was 9.2%, and based on this, they estimated that the overall loss rate in ERP was 18.7%.

CBT seems to be the first line treatment for OCD, but one of the main limitations of standard CBT is poor patient compliance (Brauer et al.2011, Didonna et al.2019). In a meta-analysis on treatment compliance for CBT in OCD treatment; it was observed that the rate of rejecting the CBT was 15.6% and the drop out rate was 15.9% (Leeuwerik et al. 2019), and the rate of drop out in antidepressant treatment increased to 30.3% (Öst et al. 2015). In addition, it is seen that CBT is costly (Fineberg et al. 2018) and long-term and also after CBT, residual symptoms continue (Fisher and Wells 2005).

The fact that severe OCD is associated with significant disability, low quality of life, high family burden and a high level of impairment in social functioning (Bystritsky et al.2001, Gururaj et al.2008), the prevalence of individuals diagnosed with OCD is higher than expected, and the need for effective treatment options for OCD has increased upon the realization that is a disorder that significantly reduces the quality of life of patients. Consequently, limitations such as non-acceptance of CBT by all patients,

high drop out rates and difficulties encountered in ERP, such as refusal of treatment resulted in the implementation of Third Wave Therapies (Manjula and Sudhir 2019).

Hayes (2004) argued that Third Wave Therapies are built on traditional cognitive behavioral approaches, but differ in several critical aspects. From his point of view, first-wave behavioral therapies that emphasize the importance of scientifically derived theoretical principles and clinical methods overlook some of the clinical richness inherent in Psychoanalytic and Humanistic Therapy approaches. The second wave therapies, also referred to as the Cognitive Therapy movement, focus on the role of internal experiences such as cognitions and emotions, but the literature points out that there are important deficiencies in the effectiveness of techniques aimed at changing cognition and cognitive models of anxiety. In addition, changes and developments in the basic philosophy of science point to the necessity of moving from a mechanistic perspective to a more contextual perspective.

Similar to traditional cognitive behavioral approaches, these new interventions are also theory-based and based on empirical evaluation of related basic principles, processes and results. However, while these therapies focus on behavioral change as a result, they also emphasize contextual and experiential change methods that change their function without directly interfering with the form or frequency of psychological events. Third Wave Therapies have broadly expanded their goal from reducing symptoms to developing applicable skills to significantly increase quality of life. In addition, Third Wave Therapies; It emphasizes the ubiquitous nature of the processes that are thought to underlie psychopathology and the assumption that the therapist is a person who, like the client, has difficulties associated with many fundamental issues (Hayes 2004).

Hayes et al (2004) states that it is not easy to identify the elements that bring these new methods together, called Third Wave Therapies, but they attempt to study subjects such as acceptance, mindfulness, cognitive fusion, dialectics, values, spirituality, and relationship traditionally considered to be reserved for less experimental branches of clinical studies; and they adopt a more experiential approach as a method rather than an educational approach. The Third Wave Therapies; it is possible to say that it differs from previous wave therapies only in terms of moving away from the commitment to first-order change, adopting more contextual assumptions, adopting more experiential and indirect change strategies in addition to direct strategies, and expanding the focus of change (Hayes 2004).

Although there are different opinions in the literature regarding which types of therapy should be evaluated in the context of Third Wave Therapies, there is an opinion that Acceptance and Commitment Therapy (ACT), Dialectical Behavior Therapy, Compassion Focused Therapy, Mindfulness Based Interventions, Functional Analytical Therapy, Schema Therapy and Metacognitive Therapy are evaluated in this context in consensus (Linardon et al. 2017). In addition, it is seen that emotion-focused therapies, especially Integrative Emotion Regulation Therapy (Mennin 2010) and Emotion Regulation Therapy (Berking 2014), are also discussed in this context (Vatan 2016).

Although there is no study on the effectiveness of Functional Analytical Psychotherapy, Compassion Focused Therapy and Emotion Regulation Therapies in adult individuals diagnosed with OCD, it is seen that one of the most frequently used therapy types in the treatment of OCD is ACT. ACT; it is a contextual treatment and it is not only the form of problem behavior at the clinical level (eg: Does this thought make sense? How often does it occur?), but also deals with its function (e.g. What do thoughts, feelings, impulses, and behaviors serve? Under what conditions does it function this way?). This is an important philosophical difference from the implicit philosophies that underlie many first and second wave behavioral therapies (Hayes et al. 2004).

ACT; It is a therapy approach that uses commitment and behavioral change processes to create more psychological flexibility with acceptance and mindfulness processes (Hayes et al. 2004). It includes the use of any method that reliably produces psychological flexibility, theoretically based on the psychological flexibility theory (Hayes et al. 2012). ACT is not a set of methods, it is a therapeutic approach that targets 6 specific psychological processes, all of which strengthen behavioral flexibility. These processes are: acceptance, defusion, self as context, contact with the present moment, values, and committed action (Hayes et al. 2006). Acceptance; when thoughts, emotions and bodily sensations occur, it involves adopting a non-judgmental awareness towards these experiences and embracing them effectively (Hayes et al.2004). Defusion; it involves reducing the existing dominance of cognitive processes at a level that causes impairment in functionality over behavior. In this case, the content of the thoughts is not taken care of. Taking a position of mindfulness, attention is directed to the act of thinking and to the awareness of the presence of thoughts (Yavuz 2018). The self as context involves experiencing the existence of an immutable sense of self that is invulnerable and always present. This transcendental sense of self is a context, or observer, that goes beyond thoughts, emotions, and past experiences and in which these experiences occur (Twohig 2009). Contact with the present moment in the ACT means to consciously experience internal and external events as events that occur without attachment, evaluation or judgment (Twohig 2009). Values; they are long-term life goals that are chosen by the individual, expressed verbally, dynamic and changeable (Yavuz 2018). They are things we value and we are willing to strive for. Through the processes of acceptance and defusion, ACT tries to greatly reduce the impact of the individual's inner experiences on his actions. It also encourages the individual to act in line with his values (Twohig 2009).

Another type of therapy among the Third Wave Therapies whose effectiveness in OCD is examined is Mindfulness Based Cognitive Therapy (MB CT). Mindfulness-based interventions emphasize the formal application of mindfulness meditation to increase attention skills and develop a non-judgmental and self-compassionate attitude (Key et al. 2017). In MB CT, when unpleasant experiences occur, participants are encouraged to observe and label them as thoughts, feelings, or bodily experiences, unlike ERP, but these unpleasant experiences are not revealed intentionally. Unlike traditional CT, which aims to identify and restructure dysfunctional cognitions, attitudes towards cognitions are targeted,

not content of thoughts. In MB CT, patients are taught to carefully observe every thought that arises, label them as thoughts, try to avoid judging and acting compulsively in line with this thought (Hertenstein et al. 2012).

Another type of Third Wave Therapy, Metacognitive Therapy (MCT); it is an transdiagnostic approach that aims to change the processes that sustain cognitive and emotional irregularities in mental disorders (McEvoy 2019). MCT is based on the idea that individuals are trapped in emotional discomfort due to their metacognition, which leads to a certain pattern of response to their inner experiences that sustain their emotions and reinforce their negative opinions (Well 2008). MCT is based on the principle that metacognition is crucial to understanding how cognitions work and how they produce conscious experiences for us and the world around us. Metacognition adjusts what we focus our attention on and affects the types of strategies we use to regulate thoughts and emotions (Well 2008). In MCT, treatment techniques such as attention training technique, detached mindfulness are used in order to change attention control (Well 2008).

Dialectical Behavior Therapy (DBT), another Third Wave Therapy whose effectiveness in OCD treatment was examined, was developed by Linehan (1993) for individuals who are diagnosed with Borderline Personality Disorder and who are chronically suicidal. DBT includes cognitive and behavioral therapy strategies and emphasizes dialectics. Acceptance and change come first among the dialectics defined as the reconciliation of opposite ends on the continuity. What is meant by acceptance and change is to establish the dynamic balance between acceptance strategies adapted from the principles of Zen Buddhism and behavioral change strategies in therapy. In addition, the therapy focuses on teaching specific skills such as mindfulness, stress tolerance, emotion regulation, and interpersonal effectiveness (Linehan 1993).

Another type of therapy considered among Third Wave Therapies is Schema Therapy (ST) which is based on Cognitive Behavioral Therapy and experiential techniques, the foundations of which were laid by Young (1990). Originally developed to treat personality disorders and other chronic mental disorders; Although it has its origins in classical CT, it focuses more on schema and mode concepts compared to CT. It includes a wide range of techniques for emotions, thoughts and behaviors in the patient's current and past life, as well as the during therapy. One of the most prominent skills dealt with in ST is to be able to recognize the dysfunctional modes of the current functionality (Arntz and van Genderen 2009).

Given that there is an increasing trend towards integrative therapies including Third Wave Therapies in the treatment of OCD, this review study, providing a holistic perspective on the effectiveness of Third Wave Therapies used in the treatment of OCD can contribute to the completion of a gap in the literature. Although it is seen that there is a review on the effectiveness of different types of Third Wave Therapies in psychosis treatment, sexual dysfunction or individuals with cancer in our country (Yıldız 2018, Durna et al. 2018, Yastıbaş and Dirik 2018), there is no study that reviews the current studies on the effectiveness of Third Wave Therapies in OCD. Based on this, in this study, it is aimed to review the studies carried out in the last 16 years regarding the effectiveness of Third Wave

Therapies in OCD, thus revealing the findings on their effectiveness and summarizing the information about the therapy processes used.

Method

The inclusion and exclusion criteria of the studies included in this review, in order to examine the methodological features of the researches and the content of the interventions used, as well as providing a perspective on the effectiveness of the Third Wave Therapies used in the treatment of OCD were determined at the begining of the study. In accordance with these criteria; all studies published in English and Turkish between 2004-2020 (July), which can be accessed from EBSCOHOST (including TR Index and Medline), Science Direct, Google Scholar, Ulakbim and Web of Science databases, are included in this review.

Key words which are used to search articles in databases are listed below:

1. obsesif kompulsif bozukluk ve kabul ve kararlılık terapisi; obsessive-compulsive disorder and acceptance and commitment therapy, 2. obsesif-kompulsif bozukluk ve bilinçli farkındalık; obsessive-compulsive disorder and mindfulness, 3. obsesif-kompulsif bozukluk ve bilinçli farkındalık temelli bilişsel terapi; obsessive-compulsive disorder and mindfulness based cognitive therapy, 4. obsesif kompulsif bozukluk ve üstbilişsel terapi; obsessive-compulsive disorder and metacognitive therapy 5. obsesif-kompulsif bozukluk ve şema terapi; obsessive-compulsive disorder and schema therapy, 6. obsesif-kompulsif bozukluk ve diyalektik davranış terapisi; obsessive-compulsive disorder and dialectical behavior therapy, 7. obsesif-kompulsif bozukluk ve şefkat odaklı terapi; obsessive-compulsive disorder and compassion focused therapy, 8. obsesif-kompulsif bozukluk ve işlevsel analitik psikoterapi; obsessive-compulsive disorder and functional analytic psychotherapy, 9. obsesif-kompulsif bozukluk ve bütünleştirici duygu düzenleme terapisi; obsessive-compulsive disorder and integrative emotion regulation therapy, 10. obsesif-kompulsif bozukluk ve duygu düzenleme terapisi, obsessive-compulsive disorder and emotion regulation therapy, 11. obsesif-kompulsif bozukluk ve üçüncü kuşak terapiler; obsessive-compulsive disorder and third wave therapies, 12. obsesif-kompulsif bozukluk ve yeni dalga terapiler; obsessive-compulsive disorder and new wave therapies.

The inclusion and exclusion criteria of the studies to be included in this review are as follows:

Inclusion criteria:

1. Participants are be over the age of 18
2. Participants are primarily diagnosed with OCD
3. The intervention are applied within the scope of OCD treatment. Including Acceptance and Commitment Therapy, Mindfulness-Based Interventions, Metacognitive Therapy, Schema Therapy, Dialectic Behavior Therapy, Compassion Focused Therapy, Functional Analytical Psychotherapy, Integrative Emotion Regulation Therapy, or Emotion Regulation Therapy, which are called Third Wave Therapies
4. Provided information covers the effectiveness of Third Wave Therapies in OCD

Exclusion criteria:

1. The studies includes samples on children and adolescent
2. Participants' primary diagnosis are not being OCD
3. Researches do not provide information about the effectiveness of Third Wave Therapies in OCD
4. The intervention applied within the scope of OCD treatment is not based on Third Wave Therapy (directly including only cognitive or behavioral based interventions)
5. The research has been published in languages other than English and Turkish.

As a result of the screening made considering the above-mentioned inclusion and exclusion criterias, no research was found on the effectiveness of Compassion-Focused Therapy, Functional Analytical Psychotherapy, Integrative Emotion Regulation Therapy and Emotion Regulation Therapy in adult individuals diagnosed with OCD.

The 15 studies obtained as a result of the screening are not included in this review. As the inclusion criteria of 9 studies OCD (Arch et al. 2012, Arch and Ayers, 2013, Arch et al. 2013, Bos et al. 2013, Davies et al. 2015, Ritzert et al. 2016, Villatte et al. 2016, Pleger et al. 2018, Sado et al. 2018), it was determined that the participants met the diagnoses of psychological stress levels, Anxiety Disorder, a mental disorder or one of the Axis-I disorders, and that individuals with a diagnosis of OCD were included in the samples. However, these studies were not included in this review as they do not provide direct information on the effectiveness of Third Wave Therapies on OCD symptoms of individuals with. In another study (Moritz and Jelinek 2011), the participants were not evaluated for the diagnosis of OCD, and the participants were asked to confirm that they had been diagnosed with OCD by a health professional before. However, this study was also excluded because there was 1 participant in the sample of the study who could not confirm this. Three other studies (Moritz et al. 2016, Moritz et al. 2019a, Moritz et al. 2019b) were not included in the review due to the lack of an assesment for the diagnosis of OCD or the requirement for a previous diagnosis of OCD by a specialist. Another study (Ong et al. 2020), was excuded since Twohig et al.' (2018) research findings was utilized and did not provide more information on effectiveness. Finally, the study of Grotte et al. (2015) was excluded because a small portion of the participants had interventions involving MCT components and only the ERP intervention was applied to the majority.

After the evaluation of the studies obtained during the screening in terms of inclusion and exclusion criteria, a total of 47 studies were included in this review.

Results

The information on the methodological characteristics of the studies are categorized according to the type of therapy examined, and summarized in Table 1 for ACT, Table 2 for Mindfulness Based Therapies, Table 3 for MCT, Table 4 for ST, and Table 5 for DBT.

Table 1. Methodological features of acceptance and commitment therapy studies

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Twohig et al. 2006 (NCMBD)	Examine the efficacy of ACT in treatment of patients with OCD	OCD diagnosed, MA: 33.5, F: 50%, N: 4	OCI, BAI BDI-II, AAQ, DM (clinical inerview)	Pre-test Post-test 3 month follow up	Compulsions, anxiety and depression levels of all participants decreased, experiential avoidance, the credibility of their obsessions and the need to react to obsessions decreased, and their gains were preserved during follow-up. Participants reported that they found the treatment highly acceptable.	None
Eifert et al. 2009 (CS)	Examine the efficacy of ACT in treatment of patients with 3 different Anxiety Disorder	OCD and secondary Panic Disorder diagnosed, 52 years old, female, N: 1	AAQ, WBSI, FQ, MAAS, QOLI, ACQ, MASQ, PI-WSUR, ASI (ADIS-IV)	Pre-test Post-test 6 month follow up	It was determined that the stress level of the participants decreased, their level of perceived control over their anxiety increased, their OCD severity decreased to the subclinical level, and they continued the gains during follow-up.	None
Twohig et al. 2010a (RCCT)	Examine the efficacy of ACT, comparing with PMR, in treatment of patients with OCD	OCD diagnosed, MA: 37, F: 61%, N: 79 ACT (41) PMR (38)	Y-BOCS, BDI-II, QOLS, AAQ, TCQ, TAF (SCID)	Pre-test Post-test 3 month follow up	ACT; For those who reported at least mild depression before treatment with OCD severity, it led to more changes in depression level and quality of life.	ACT: 9.8% PMR: 13.2%
Twohig et al. 2010b (SSED)	Identify change mechanisms of ACT, CT and ERP	OCD diagnosed, MA: 30.17, F: 66.66%, N: 6 ACT (2), CT (2), ERP (2)	(SCID, Y-BOCS)	Pre-test Before sessions Post-test	The OCD symptoms of the participants in all 3 groups decreased; 1 participant in the ACT group showed the highest overall change in psychological flexibility.	None
Dehlin et al. 2013 (MBD)	Examine the efficacy of ACT in treatment of patient with scrupulosity based-OCD	Scrupulosity-based-OCD diagnosed, MA: 32.4, F: 60%, N: 5 ACT (5)	OCI R, PIOS, QOLS, Y-BOCS, BDI-II, SCSORF, AAQ-II (SCID)	Pre-test Post-test 3 month follow up	ACT; It led to a decrease in OCD and depression symptoms, an increase in quality of life, gains continued increasingly during follow-up, and treatment acceptance was determined to be high.	None
Vakili and Gharraee 2014 (SSED)	Examine the efficacy of ACT in treatment of patients with OCD	OCD diagnosed, 39 years old, male, N: 1 ACT (1)	Y-BOCS, BAI, BDI-II (SCID-I, SCID-II)	Pre-test During treatment Post-test 1, 3, 6 month follow up	ACT; It reduced OCD, depression and anxiety symptoms, and the gains were preserved during follow-up.	None
Twohig et al. 2015 (RCT)	Examine the effect of ACT, comparing with PMR, on psychological flexibity of patients with OCD	OCD diagnosed, MA: 37, F: 61%, N: 79 ACT (41) PMR (38)	Y-BOCS, AAQ, TAF, TCQ (SCID)	Pre-test Post-test 3 month follow up	It has been determined that the treatment effect is gradual, and ACT is significantly more effective in the last 2 sessions.	ACT: 9.8% PMR: 13.2%

Table 1. Continued

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Vakili et al. 2015 (ED)	Compare the efficacy of ACT, SSRI and ACT+SSRI in treatment of patients with OCD	OCD diagnosed, MA: 26.96, F: 44.4%, N: 27 ACT+SSRI (11) SSRI (11) ACT (10)	Y-BOCS, AAQ (SCID-I/P, SCID-II)	Pre-test Post-test	ACT and combined therapy resulted in the same improvement in OCD symptoms and experiential avoidance. Complete remission rate: 22% in ACT, 20% in ACT + SSRI, 0% in SSRI	SSRI: 3 ACT: 1 SSRI+ACT: 1
Wheeler 2017 (CS)	Examine the efficacy of ERP+ACT in treatment of patients with OCD	OCD diagnosed, twenties years old, female, N: 1 ACT+ERP (1)	(Y-BOCS SF, OCI)	Pre-test During sessions	There has been a reliable and clinical change in OCI, and a reliable change in Y-BOCS. The client's well-being has improved and his rituals have decreased.	None
Rohani et al. 2018 (RCT)	Examine the effectiveness of adding group ACT to adults diagnosed with OCD who were already on SSRI	OCD diagnosed, MA: 27.91, F: 100%, N: 46 SSRI+group ACT (23) SSRI (23)	Y-BOCS-SR, BDI-II, RRS, AAQ (SCID)	Pre-test Post-test 2 month follow up	Both treatments led to a decrease in Y-BOCS and BDS-2 scores, and the decrease in SSRI + ACT was greater in the follow-up. There was more improvement in SSRI + ACT condition, RRS and AAQ in post-test and follow-up.	Post-test and follow up: ACT: 7 WL: 7
Twohig et al. 2018 (RCT)	Examine the acceptability and treatment completion rates of ACT+ERP	OCD diagnosed, MA: 27.80, F: 68%, N: 58 ACT+ERP (30) ERP (28)	Y-BOCS, DOCS, BDI-II, AAQ-II, OBQ-44 (MINI)	Pre-test, Post-test, 6 month follow up	Both treatments led to a decrease in OCD and depression symptoms and obsessive beliefs, and these gains were also preserved during follow-up, but there was no difference between the rate of gains, treatment acceptability, and drop out from treatment among groups.	ACT+ERP: 17% ERP: 17.9%
Thompson et al. 2021 (NCMBD)	Examine the effect of ERP+ACT on psychological flexibity of patients with OCD	OCD diagnosed, F: 100%, N: 4	Y-BOCS, OCI-R, AAQ -II, CFQ, PHLMS (SCID-R)	Pre-test Middle of the treatment Post-test	According to the Y-BOCS, 3 out of 4 participants responded to the treatment and 2 participants achieved remission. The time that all participants spend daily on rituals has decreased.	

Methodological features of the studies

Participants

When the sample characteristics of the included studies are examined for this review; It was observed that the age of the participants was between 18-75 and the average age ranged from 26.96 to 44.04, most of them were women and adult individuals who met the OCD diagnostic criteria according to DSM-IV, DSM-IV-TR or DSM-V.

Table 2. Methodological features of the mindfulness based therapy studies

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Patel et al. 2007 (CS)	Examine the efficacy of MB SRT in treatment of patients with OCD	OCD diagnosed, 25 years old, male, N: 1	Y-BOCS, TMS	Pre-test Middle of the treatment Post-test	Significant reductions in OCD symptom severity were found.	None
Wilkinson-Tough et al. 2010 (SCEDS)	Examine the efficacy of MBT in treatment of patients with OCD	MCT: OCD diagnosed, MA: 37.7, F: 33.33%, N: 3 Relaxation training (control)	OBQ-44, KIMS, TAF (Y-BOCS)	Pre-test Post-test 2 month follow up	Participants' OCD symptoms fell below the clinical level, and 2 participants also maintained their gains in follow-up.	None
Zoysa 2011 (CS)	Examine the efficacy of Buddisth mindfulness exercises in treatment of patient with OCD	OCD diagnosed, 21 years old, male, N: 1	Subjective self-reports of client	Pre-test Post-test Follow up	The client's ability to notice the first emergence of her/his thoughts without the need for rumination and early detection when her/his symptoms begin to appear again, to take corrective actions by using mindfulness techniques was increased	None
Hertenstein et al. 2012 (PT)	Examine the subjective experiences of patients with OCD in MB CT treatment condition	OCD diagnosed, participants who completed BT with ERP in last 2 years, MA: 41.8, F: 25%, N: 12	Y-BOCS (DSM-IV, SCID-IV)	Pre-test Post-test	2/3 of the participants reported that OCD symptoms decreased, and the participants reported an increase in their ability to allow their negative emotions to rise on surface and to live more consciously.	N: 4
Wahl et al. 2012 (ED)	Examine the efficacy of MB instruction on cognitions of patients with OCD	OCD diagnosed N: 30 Mindfulness = MA: 30.67, F: 60%, N: 15 Distraction = MA: 39.73, F: 40%, N: 15	OCI-R, BDI-II, BAI, STAI, VAS (SCID-I, Y-BOCS)		The mindfulness-based strategy reduced the anxiety and the urge to neutralize.	
Madani et al. 2013 (ED)	Examine the effect of mindfulness group training on OCD symptoms	OCD diagnosed N: 24 Mindfulness group training (12) Control condition (12)	Y-BOCS (DSM-IV R clinical interview)	Pre-test Post-test 2 month follow up	In post-test and follow-up; it was determined that mindfulness had a significant effect on the symptoms of obsession and washing / cleaning, approval, slowing down, and obsessive hesitation.	

Table 2. Continued

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Cludius et al. 2015 (ED)	Examine the efficacy of mindfulness based training delivered as self-help format in treatment of patient with OCD	OCD diagnosed N: 87 Mindfulness (49) = F: 30, MA: 39.88 PMR (38) = F: 28, MA:41.37	PCL, CES-D, OCI-R (WSQ)	Pre-test Post-test (6 week after the treatment)	There was no change in any scale scores of the participants, but all participants who did the mindfulness exercises reported that the handbook was useful in all conditions.	MB: 23 PMR: 15
Kumar et al. 2016 (OT)	Examine the efficacy of MB CBT in treatment of patient with predominant obsessions-OCD	OCD diagnosed, MA: 29.67, F: 22.2%, N: 27	Y-BOCS, CGI, STAI MADRS, TMS, SDS, WHOQOL-BREF (MINI)	Pre-test Middle of the treatment Post-test 3 month follow up	In the post-test; Participants' obsession intensity decreased by 56%, and their depression and anxiety levels also decreased. During follow-up, the severity of obsession decreased by 63% and 67% of the participants reached remission.	Post-test: 1 Follow up: 2
Key et al. 2017 (RCT)	Examine the efficacy of MB CT on residual symptoms of patient with OCD	OCD diagnosed, participants who completed ERP+CBT but continue to suffer from residual symptoms, MA: 40.53, N: 36 MB CT = MA: 40.53, F: 50%, N: 18 WL = MA: 46.06, F: 44.4%, N: 18	Y-BOCS-SR, FFMQ, SCS, BDI, BAI, OBQ-44 (SCID-I, Y-BOCS)	Pre-test Son test	In MB CT condition; 23.1% of the participants had a decrease in OCD symptoms, a greater decrease in depression and anxiety symptoms, and a greater increase in mindfulness skills and self-compassion levels.	MB CT: 5 (27.7%) WL: 3 (16.7%)
Sguazzin et al. 2017 (Qualitative)	Examine the efficacy and acceptability of MB CT on residual symptoms of patient with OCD	OCD diagnosed, MA: 44.04, K: 42.9%, N: 32 MB CT (28) Waiting list	(SCID-I, YBOCS)	Pre-test Post-test	Approximately 63% of the participants reported that the treatment reduced OCD symptoms moderately, while 37% did not. Participants; reported that their quality of life increased with mindfulness and coping skills and that they found the treatment acceptable.	

Table 2. Continued

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Selchen et al. 2018 (ED)	Examine the efficacy of MB CT on OCD symptoms	OCD diagnosed, MA:42, F: 60%, N: 37 First MB CT, second CBT = MA: 40.68, F: 63.2%, N: 19 First CBT, second MB CT = MA: 43.61, K: 55.6%, N: 18	BDI-II, FFMQ, OBQ-44 (SCID-5, Y-BOCS-SR)	Pre-test Post-test	In both groups, there were significant improvements in depression symptoms, mindfulness level, and obsessive beliefs.	Both conditions: 1 (5%)
Strauss et al. 2018 (RCT)	Compare the efficacy of group MB ERP and group ERP in treatment of patients with OCD	OCD diagnosed, N: 37 MB ERP = MA: 33, K: 79%, N: 19 ERP = MA: 27, K: 50%, N: 18	Y-BOCS-II, WMWS-S, BDI-II, FFMQ-SF, OBQ-44 (MINI)	Pre-test, Post-test, 6 month follow up	Both groups had improvement in the severity of OC symptoms. MB ERP; OC did not benefit more in terms of symptoms, depression, well-being, or beliefs associated with OCD, but moderate/medium-large improvement in mindfulness level.	MB ERP: 4 (21%) ERP: 1 (5.6%)
Didonna et al. 2019	Examine the efficacy of MB CT in treatment of patients with OCD	OCD diagnosed, MA: 37.2, F: 43%, N: 35	Y-BOCS-SR, FFMQ, BDI-II, SCL-90-R, DES, PSWQ, TAS-20	Pre-test, Middle of the treatment Post-test	OCD symptom severity and Y-BOCS total score decreased, 1/3 of the participants responded to the treatment, and 40% passed to the lower symptom severity category. Depressive symptoms decreased, mindfulness skills increased.	10%
Külz et al. 2019 (RCCT)	Examine the efficacy and acceptability of MB CT on residual symptoms of patient with OCD	OCD diagnosed, participants who completed CBT but continue to suffer from residual symptoms, MA: 38.62, F: 61.6%, N: 125 MB CT (61) PE (64)	OCI-R, BDI-II, WHOQOL-BREF, SCL-90-R, DTS, KIMS, SCS, MCQ-30, CSQ, OBQ-44, MINI (DSM-5, Y-BOCS)	Pre-test Middle of the treatment Post-test 6 month follow up	According to Y-BOCS; MB CT did not have a significant effect on ERP+CBT. In MB CT; the improvement in treatment response rate, obsessive beliefs, and quality of life was greater. During follow-up, OC symptoms improved more in both groups, but group differences lost their significance.	MB CT: 6.6% PE: 9.4%

Table 2. Continued

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Rupp et al. 2019 (RCT)	Compare the effectiveness of CR and DM in treatment of patients with OCD	OCD diagnosed N: 43 Condition without WL: CR = MA: 31.23, F: 45.45%, N: 12 and DM = MA: 30.81, F: 71.43%, N: 10 WL condition: MA: 30.42, F: 57.14%, N: 21	BDI-II (SCID-I, Y-BOCS)	Pre-test Post-test 1 month follow up	Both treatments were equally more effective in reducing OCD symptoms compared to WL, and 40% of the participants showed a clinically significant change.	N: 3
Cludius et al. 2020 (RCCT)	Examine the long term efficacy of MB CT on residual symptoms of patient with OCD	OCD diagnosed, participants who completed CBT but didn't response, MA: 38.62, F: 61%, N: 125 MB CT (61) PE (64)	OCI-R, WHOQOL-BREF, BDI-II, SCL-90-R, OBQ-44, MCQ-30-SR, DTS, KIMS, SCS (DSM-5, Y-BOCS)	Pre-test Post-test 6 and 12 month follow up	Symptom reduction in 12-month follow-up was similar in both conditions, but in MB CT, time spent with obsessive thoughts, stress associated with obsessive thoughts and, there was a greater decrease in frustration score due to obsessive thoughts.	Completion rate at 12 month follow up: 80%
Landmann et al. 2020 (RCT)	Examine the effects of MB CT on daily life experiences of patients with OCD	OCD diagnosed, participants who completed CBT but continue to suffer from residual symptoms, N: 38 MB CT = MA: 36.47, F: 64.70%, N: 17 PE = MA: 36, F: 57.14%, N: 21	Y-BOCS, AQ, BDI-II, SBQ-R, MINI (Y-BOCS)	Pre-test Post-test	MB CT; it did not cause changes in terms of positive-negative mood, acceptance of immediate emotions, or stress associated with obsessive-compulsive symptoms, but the presence of momentary obsessive-compulsive symptoms predicted increased insight.	After post-test: 1 Post-test: 1

It has been determined that the OCD diagnoses of the participants are mostly determined with Y-BOCS (Külz et al. 2019, Landmann et al. 2020). In some studies, in addition to the Y-BOCS or alone, Mini International Neuropsychiatric Interview (Rees et al. 2008, Hauschildt et al. 2016), scales such as SCID (Dehlin et al. 2013, Rohani et al. 2018), SCID-I (Wahl et al. 2012), SCID-R (Thompson et al. 2021), SCID-I / P (Vakili et al. 2015), SCID-V (Selchen et al. 2018) and the Anxiety Disorders Interview Scale-IV (Eifert et al. 2009) has been used for OCD diagnosis. The cut-off scores of the Y-BOCS score are 16 (Selchen et al. 2018), 14 (Key et al. 2017), 12 of the total score and over (Külz et al. 2019), or the Y-BOCS score is 12 out of the total score, or 8 at sub-scale score (Cludius et al. 2020), the difference was observed.

Table 3. Methodological features of metacogntive therapy studies

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Fisher and Wells 2008 (CS)	Examine the efficacy of MCT in the treatment of patient with OCD	OCD diagnosed, MA: 38.5, F: 50%, N: 4	Y-BOCS, PI, BDI, BAI, OCBQ, MOCI, TAF	Pre-test Post-test 3 and 6 month follow up	All participants met the improvement criteria according to the Y-BOCS. According to Y-BOCS; 1st participant 75%, 2nd participant 63%, 3rd participant 69% and 4th participant 74% improved.	None
Rees et al. 2008	Examine the efficacy of group MCT in the treatment of patient with OCD	OCD diagnosed, age range: 21-58, F: 6, N: 8	MCQ-30, BDI, Y-BOCS (MINI)	Pre-test Post-test 3 month follow up	All participants had improvement in OCD symptom severity and metacognition and 7 participants improved in follow-up according to Y-BOCS.	
Moritz et al. 2010 (ED)	Examine the efficacy of myMCT in the treatment of patient with OCD	Participants who reported that diagmosed with OCD by ehalth Professional, N: 86 myMCT (43) = MA: 34.95, F: 62.79% WL (43) = MA: 34.09, F: 72.39%	Y-BOCS-SR, BDI-SF, OCI-R	Pre-test Post-test (4. week)	myMCT, further improvement in OC symptoms; it also led to a moderate-strong difference in the OCI-R and BDI-SF.	None
Shareh et al. 2010 (ED)	Compare the efficacy of MCT, SSRI and MCT+SSRI in the treatment of patient with OCD	OCD diagnosed, MA: 26.84, F: 10, N: 21	Y-BOCS, BDI-II, BAI (SCID-I/P, SCID-II)	Pre-test Post-test	All patients in the MCT and combined therapy groups improved in OCD severity, depression and anxiety equally more than pharmacotherapy.	N: 2
Andouz et al. 2012 (SSED)	Examine the efficacy of MCT in the treatment of patient with pure obsession	Participants with pure obsessions, N: 6	OCI-R, Y-BOCS, MCQ-30, TAF, BDI-II (SCID-I)	Pre-test Post-test 3 month follow up	MCT; it was effective in reducing OC symptoms and changing fusion of metacognitive beliefs with thought. Recovery rate: in OCI; 60% in post-test, 70% in follow-up, in Y-BOCS; 68% at post-test, 74% at follow-up. The gains are largely maintained in follow-up.	None
Fitt and Rees 2012 (SCEDS)	Examine the efficacy of video conference based MCT in treatment of patients with OCD	OCD diagnosed, N: 4, Age: 34, 55, 66, 57 F: 50%, N: 4	Y-BOCS, MCQ-30-SR, DASS- 21 (SCID)	Pre-test Post-test 6 week follow up	Participants' levels of OC symptoms, depression, anxiety and stress decreased. According to the Y-BOCS, 2 participants achieved remission, 1 participant improved.	1

Table 3. Continued

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Hauschildt et al. 2016 (RCT)	Compare the efficacy of myMCT and PE in the treatment of patient with OCD	OCD diagnosed, N: 128 myMCT (64) = MA: 38.41, F: 67.18% PE (64) = MA: 39.64, F: 67.2%	BDI, OBQ-44 (MINI, Y-BOCS)	Pre-test Son test (4. week) 6 month follow up	According to the Y-BOCS total score, myMCT led to a stronger effect in reducing OCD symptoms in terms of obsession, depression, and cognitive biases. BDI scores of the participants also decreased during follow-up.	Assesment: myMCT = 10 PE = 6
Van der Heiden et al. 2016 (OT)	Examine the efficacy of MCT in treatment of patients with OCD	OCD diagnosed, MA: 32.3, F: 68%, N: 25	PI, Y-BOCS, BDI-II, TAF (SCID-I)	Pre-test Post-test 3 month follow up	MCT; it provided a great reduction in all outcome variables. According to the Y-BOCS, 74% of the participants improved in the post-test and 80% in the follow-up. 63% of them did not meet the OCD diagnostic criteria at the posttest and 80% at the follow-up.	In treatment: 6 (24%) Follow up: 3 (12%)
Jelinek et al. 2018a (UPT)	Examine the feasibility and acceptability of Metacognitive education in treatment of patients with OCD	OCD diagnosed, MA: 33.73, F: 50%, N: 44	OCI-R, PHQ-9 (MINI, Y-BOCS)	Pre-test Post-test	89.7% of the participants evaluated the treatment as a useful and understandable type of treatment, thus can recommend to others. 44.7% of them reported reduced compulsions and 42.1% reduced obsessions.	N: 40 (9.09%)
Jelinek et al. 2018b (RCT)	Examine the acceptability and benefits of CBT with ERP+AS in the treatment of patients with OCD	OCD diagnosed, N: 109 CBT+AS = MA: 33.30, F: 63%, N: 54 CBT+CR (active control) = MA: 35.78, F: 49.1%, N: 55	Y-BOCS, OCI-R, HDRS (MINI)	Pre-test, Post-test, 6 month follow up	89.7% of the participants evaluated the treatment as a useful and understandable type of treatment, and also can be recommend to others. Compulsion of 44.7% and obsessions of 42.1% decreased.	AS: 2 CR: 7
Melchior et al. 2018 (CS)	Examine the efficacy of MCT in treatment of patient with OCD	OCD diagnosed, 57 years old, male, N: 1	Y-BOCS, Padua-IR, SCID-I, TFI	Pre-test Post-test 3 month follow up	The participant no longer meets the OCD diagnosis criteria according to DSM-IV; his scores on scales decreased; It was determined that his gains maintained in 3-month follow-up.	None

Table 3. Continued

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Moritz et al. 2018 (RCCT)	Examine the efficacy of myMCT in treatment of patients with OCD	Participants who reported OCD symptoms, N: 70 myMCT (35) = MA: 38.17, F: 71.42% WL (35) = MA: 39.34, F: 82.85%	Y-BOCS-SR, PHQ-9, OCI-R, MAX, CBQ	Pre-test Post-test (6 week after)	In myMCT group; There was a greater decrease in Y-BOCS, OCI-R, PHQ-9 and CBQ scores.	Post-test: 20% myMCT: 26% Control: 14%
Papageorgiou et al. 2018 (Cohort)	Examine the advantages of group MCT in the treatment of patients who attended CBT for OCD	OCD diagnosed N: 220 1. CBT cohort (125) = MA: 34.98, F: 52.8% 2. Consecutive group MCT (95) = MA: 31.76, F: 47.4%	Y-BOCS, BDI, WSAS, CGI-I (SCID)	Pre-test Post-test	MCT provided clinically significant results above/equivalent to previous group CBT. In the MCT condition; scale scores decreased, more significant improvement and treatment response rate were obtained.	MCT: 7 (7.4%) CBT: 12 (9.6%)
Miegel et al. 2020 (UPT)	Examine the session specific effects of Metacogntive training in the treatment of OCD	OCD diagnosed, MA: 33.73, F: 50%, N: 44	OCI-R, PHQ-9 (MINI, Y-BOCS)	Pre-test, Post-test, Before and after sessions	Thought monitoring, thought control, obsessions and compulsions of the participant decreased.	9.09%

Table 4. Methodological features of schema therapy studies

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Leahy 2007 (CS)	Examine the efficacy of Emotional ST in the treatment of OCD	OCD diagnosed, 38 years old, female			The control compulsions of the participant have disappeared.	None
Sokman and Steketee 2007 (CS)	Examine the efficacy of SBT in treatment of patients with OCD	OCD diagnosed, 60 years old, female			It was determined that the Y-BOCS score of the participant decreased and preserved its gains in 5-year follow-up.	None
Thiel et al. 2016 (UPT)	Examine the efficacy of ST augmented ERP in treatment of patients with OCD	OCD diagnosed, MA: 35.26, F: 50%, N: 10	Y-BOCS, OCI-R, BDI-II (SCID-I)	Pre-test Post-test 6 month follow up	The results from scale scores decreased with the large effect size, the gains were maintained in the follow-up and the Y-BOCS scores of 5 participants decreased by 35%.	1

Table 5. Methodological features of dialectical behavior therapy studies

Study (design)	Purpose	Participants	Measures (diagnostic)	Assesment duration	Outcomes	Drop out
Ahovan et al. 2016 (QED)	Examine the efficacy of DBT on clinical signs and emotion regulation skills of patients with OCD	Resistant-OCD diagnosed, N: 30 Experimental condition (15): F: 100% Control condition (15): F: 100%	Y-BOCS, CERQ	Pre-test Post-test	It was determined that DBT reduces symptoms and improves cognitive emotion regulation skills.	

Frequently used exclusion criteria in the studies are; psychotic symptoms, manic episode, active suicidal ideation, bipolar disorder, major depression, alcohol abuse/addiction, recent drug dosage changes, borderline personality disorder and mental retardation (Van der Heiden et al. 2016, Rohani et al. 2018, Cludius et al. 2020).

It was determined that the sample sizes of the studies varied in a very wide range between 10 (Thiel et al. 2016) and 220 (Papageorgiou et al. 2018), except for the studies in form of case study design (Patel et al. 2007, Vakili and Gharraee 2014, Melchior et al. 2018).

When examined in which countries the researches were conducted; It has been determined that it is mainly made in Germany (Hauschildt et al. 2016, Miegel et al. 2020) and the USA (Twohig et al. 2010a, Dehlin et al. 2013). However, it has been observed that there are researchers in Canada (Sguazzin et al. 2017, Selchen et al. 2018), United Kingdom (Papageorgiou et al. 2018), Netherlands (Van der Heiden et al. 2016), Iran (Vakili et al. 2015, Rohani et al. 2018) and Australia (Rees et al. 2008) who are interested in this subject.

Measures

It has been observed that the Y-BOCS and the Revised Obsessive Compulsive Inventory (Thompson et al.2020) were also used to determine the changes in OCD symptoms as a result of the treatment.

It was determined that different criteria were used as response to treatment. While 35% decrease in Y-BOCS score was taken as the criterion in most of the studies (Hauschildt et al. 2016), it was observed that getting 1/2 point from the Clinical General Impression-Improvement Scale was determined as the criterion in some studies (Külz et al. 2019, Cludius et al. 2020). Didonna et al. (2019), in addition to the decrease in Y-BOCS; by assigning to 5 descriptive categories (from subclinical to extreme), they determined what percentage of participants the category changed after treatment. Remission criteria were determined as the total Y-BOCS score falling below 14 (Thompson et al. 2021) or below 8 (Vakili et al. 2015). As for improvement criteria; it was determined as a decrease of at least 10 points in the Y-BOCS, getting a score of 14 or less in the post-test (Van der Heiden et al. 2016), and a score of 7 or less (Melchior et al. 2018).

In case of examining the assesment tools used to measure the processes targeted by Third Wave Therapies in the studies, it was seen that the Self-Compassion Scale (Key et al. 2017), the Kentucky Inventory of Mindfulness Skills (Wilkinson-Tough et al. 2010), the Acceptance and Action Scale-2 (Twohig et al. 2010a, Rohani et al. 2018), Five Facet Mindfulness Questionnaire (Key et al. 2017, Strauss et al. 2018) were frequently used.

In order to measure other psychological distress accompanying obsessive-compulsive symptoms, Beck Depression Inventory-2 (Twohig et al. 2018, Didonna et al. 2019) and World Health Organization Quality of Life–abbreviated (Külz et al. 2019) were used.

Assessment duration

In most of the studies, it was observed that assessment tools were used before, after treatment and during follow-up. It was determined that the follow-up times differ. In some studies, follow-ups were performed more than once at 6 and 12 months (Cludius et al. 2020), 1, 3 and 6 months after treatment (Vakili and Gharraee 2014), or only once, after 1 month (Rupp et al. 2019), 2 months (Rohani et al. 2018), 3 months (Twohig et al. 2010a), and 6 months (Hauschildt et al. 2016). In some studies, it was seen that evaluations were made only before and after treatment, but follow-up evaluation was not done (Vakili et al. 2015, Key et al. 2017).

Research design

It has been determined that the studies are predominantly randomized controlled trial (Moritz et al. 2010, Key et al. 2017, Rupp et al. 2019, Landmann et al. 2020) and case study (Wheeler 2017).

Other research designs were determined as uncontrolled trial (Miegel et al. 2020), cohort research design (Papageorgiou et al. 2018), A-B-C replication case series design (Wilkinson-Tough et al. 2010), open trial (Van der Heiden et al. 2016), and internet-based randomized waiting list conditioned research design (Moritz et al. 2018).

As can be seen, although most of the studies are quantitative, it has been observed that qualitative studies have also been conducted (Sguazzin et al. 2017).

Content and application of Third Wave Therapies in studies

Information on the therapy process of the Third Wave Therapy type, whose effectiveness was examined in the studies included in the review, were categorized according to the type of therapy examined, and is summarized in Table 6 for Acceptance and Commitment Therapy, Table 7 for Mindfulness Based Therapies, Table 8 for Metacognitive Therapy, Table 9 for Schema Therapy and Table 10 for Dialectic Behavioral Therapy.

Types of therapies

In the literature, It was determined that 17 of the studies were Mindfullness Based Therapies (Patel et al. 2007, Hertenstein et al. 2012, Kumar et al. 2016, Landmann et al. 2020), 12 were ACT (Twohig et al. 2006, Dehlin et al. 2013, Thompson et al. 2021), 14 were MCT (Fisher

and Wells 2008, Moritz et al. 2010, Miegel et al. 2020), 3 were ST (Sokman and Steketee 2007, Leahy 2007, Thiel et al. 2016) and 1 was DBT (Ahovan et al. 2016) when the types of therapy applied in the context of Third Wave Therapies examined.

The studies included in this review, it has been determined that Third Wave Therapies were conducted in different formats. It was observed that 29 of the studies were individual (Twohig et al. 2010, Wahl et al. 2012, Dehlin et al. 2013), 14 were group therapy (Key et al. 2017, Rohani et al. 2018), and 4 were self-help (Moritz et al. 2010, Cludius et al. 2015).

Characteristics of implementation of the therapy process

When the researches applied ACT were examined; It was determined that the total number of sessions ranged from 4 to 16, the duration of sessions ranged from 45 to 120 minutes, and the number of weekly sessions ranged from 1 to 2 (Dehlin et al. 2013, Wheeler 2017, Thompson et al. 2021).

Table 6. Characteristics of therapy process in acceptance and commitment therapy studies

Study	Therapy type (therapy manual)	Therapy format (patients per group)	Session length	Session duration (weekly number)	Therapist (expertise)
Twohig et al. 2006	ACT (Hayes et al. 1999)	Individual	8	60′ (1)	1 (ACT therapist)
Eifert et al. 2009	ACT (Eifert and Forsyth 2005)	Individual	12	60′ (1)	1 (clinical psychologist)
Twohig et al. 2010a	ACT (Twohig et al. 2006)	Individual	8	60′ (1)	2 (clinical psychologist)
Twohig et al. 2010b	ACT (Twohig et al. 2006)	Individual	12	60′ (1)	1 (ACT therapist)
Dehlin et al. 2013	ACT (Twohig 2006, Twohig et al. 2009, Twohig et al. 2010)	Individual	8	60-90′ (1)	2 (therapist)
Vakili and Gharraee 2014	ACT (Twohig 2007)	Individual	8		
Twohig et al. 2015	ACT (Hayes et al. 2013)	Individual	8	60′ (1)	(clinical psychologists)
Vakili et al. 2015	ACT (Twohig 2007)	Individual	8		1 (clinical psychologist)
Wheeler 2017	ACT + ERP	Individual	13	60′	1 (psychologist)
Rohani et al. 2018	ACT (Twohig et al. 2010)	Group	8		1 (ACT therapist)
Twohig et al. 2018	ACT (Twohig et al. 2015)	Individual	16	120′ (2)	10 (clinical psychologist)
Thompson et al. 2021	ACT + ERP (Eifert and Forsyth 2005)	Individual	4	45′	1 (therapist)

When the researches applied to MB CT were examined; it was observed that the total number of sessions is mostly 8, the session duration is 2 hours, the number of weekly sessions is 1 (Key et al. 2017, Landmann et al. 2020), and the number of group members varies between 8-12 in therapies conducted in group format. (Sguazzin et al. 2017, Selchen et al. 2018).

Table 7. Characteristics of the therapy process in mindfulness based therapy studies

Study	Therapy type (Therapy manual)	Therapy format (patients per group)	Session length	Session duration (weekly number)	Therapist (expertise)
Patel et al. 2007	MB Stress Reduction Treatment (Kabat-Zinn 1990 adaptation)	Individual	8	120-150′ (1)	1
Wilkinson-Tough et al. 2010	MBT (Linehan 1993)	Individual	6	60′ (1)	2 (clinical psychologist)
Zoysa 2011	Buddhist mindfulness	Individual	8	20-50′ (1 in 10-15 days)	
Hertenstein et al. 2012	BFT BT (Segal ve ark. 2002 uyarlama)	Group	8	120′ (1)	2 (CBT therapists who are experinced mindfulness exercise)
Wahl et al. 2012	Mindfulness Based Instruction	Individual			
Madani et al. 2013	Mindfulness Training	Group	8	120′ (2)	
Cludius et al. 2015	Mindfulness	Self Help	6 week		
Kumar et al. 2016	MB CBT	Individual	12-16	90′ (2)	2 (1 clinical psychologist, 1 CBT therapist)
Key et al. 2017	MB CT (Segal et al. 2002)	Group (approximately 8)	8	120′(1)	2 (mental health professional)
Sguazzin et al. 2017	MB CT (Segal et al. 2002 adaptation)	Group (8)	8	120′ (1)	2 (psikolog)
Selchen et al. 2018	MB CT (Segal et al. 2013 adaptation)	Group (8-10)	8	120′ (1)	1 (psikiyatrist / clinical psychologist)
Strauss et al. 2018	MB ERP	Group	10	120′	2 (clinical psychologist)
Didonna et al. 2019	MB CT (Didonna 2019)	Group (6-12)	11	150′ (1)	2 (leading and co trainer)
Külz et al. 2019	MB CT	Group	8 + 2	120′ (1)	(certificated therapists)
Rupp et al. 2019	Detached mindfulness (Wells 2011)	Individual	4	100′ (2)	2 (senior psychologist)
Cludius et al. 2020	MB CT (Segal et al. 2013 adaptation)	Individual	8	120′ (1)	(certificated therapists)
Landmann et al. 2020	MB CT (Külz and Rose 2014, Segal et al. 2013 adaptation)	Group	8	120′ (1)	

When the researches applying other Mindfulness Based Therapies were examined, it was determined that the total number of sessions of the Detached Mindfulness Intervention was 4, the number of sessions per week was 2 and the session duration was at least 100 minutes (Rupp et al. 2019). In Integrated CBT with Mindfulness, it was observed that the total number of sessions ranged between 12-16, the number of weekly sessions was 2 and the session duration was 90 minutes (Kumar et al. 2016).

Table 8. The characteristics of the therapy process in metacognitive therapy studies

Study	Therapy type (Therapy manual)	Therapy format (patients per group)	Session length	Session duration (weekly number)	Therapist (expertise)
Fisher and Wells 2008	MCT (Wells 1997, 2000)	Individual	12	60′ (1)	1 (therapist)
Rees et al. 2008	MCT (Rees and van Koesveld 2006)	Group	12	120′ (1)	2 (clinical psychologist)
Moritz et al. 2010	MCT (myMCT)	Self-help	4 week		
Shareh et al. 2010	MCT (Wells 2009)	Individual	10	45-60′ (1)	1 (clinical psychologist)
Andouz et al. 2012	MCT (Wells 2009)	Individual	14	50′ (1)	1 (therapist)
Fitt and Rees 2012	Video conference based MCT (Rees and van Koesveld 2009, Wells 2000)	Individual	4	60′	1 (therapist)
Hauschildt et al. 2016	MCT (myMCT)	Self-help	4 week		
Van der Heiden et al. 2016	MCT (Wells 1997, 2009)	Individual	15	45′ (1)	7 (psychologist)
Jelinek et al. 2018a	MC education (Moritz and Jelinek 2011, Moritz and Russu 2013, Moritz et al. 2007)	Group (3-10)	4	90′ (1)	2 (clinical psychologist)
Jelinek et al. 2018b	AS (Moritz and Jelinek 2007, Moritz et al. 2007)	Individual	6	50′ (2)	(therapists)
Melchior et al. 2018	MCT (Wells 1997, 2009, van der Heiden et al. 2016)	Individual	10-15		1 (therapist)
Moritz et al. 2018	MCT (myMCT) (Moritz 2010)	Self-help	6 week		
Papageorgiou et al. 2018	MCT (Wells 1997, 2009)	Group	12	120′ (1)	2 (clinical psychologist and former client)
Miegel et al. 2020	MCT (myMCT) (Moritz et al. 2007, Moritz and Jelinek 2011, Moritz and Russu 2013)	Group (3-10)	4	90′ (1)	2 (experienced therapist and assistant)

When the studies using MCT were examined; in addition the therapy was mainly applied in an individual or group format (Andouz et al. 2012, Papageorgiou et al. 2018), it was observed that the self-help format called My Metacognitive Therapy (myMCT) is frequently used (Moritz et al. 2010, Hauschildt et al. 2016). The total number of sessions of individual therapies was 4-15, session duration varies between 45 and 60 minutes, and

Table 9. Characteristics of the therapy process in schema therapy studies

Study	Therapy type (therapy manual)	Therapy format (patients per group)	Session length	duration (weekly number)	Therapist (expertise)
Leahy 2007	SB CBT (Frost and Steketee 2002)	Individual	28	(Every 2 weeks)	1 (therapist)
Sokman and Steketee 2007	ST	Individual	15	(1-2)	1 (therapist)
Thiel et al. 2016	ST (Stelzer et al. 2011a, Stelzer et al. 2011b)	Individual	12	50′ (1)	1 (therapist)

Table 10. Characteristics of the therapy process in dialectical behavior therapy studies

Study	Therapy type (therapy manual)	Therapy format	Session length	Session duration	Therapist (expertise)
Ahovan et al. 2016	DBT (Linehan 2013)	Individual	8	90′ (1)	

Method: CS: Case study, ED: Experimental design, F: Female, MA: Mean age, MBD: Multiple baseline design, N: Sample size, NCMBD: Non-concurrent multiple baseline design, OT: Open trial, PT: Pilot trial, QED: Quasi-experimental design, RCT: Randomized-controlled trial, RCCT: Randomized-controlled clinical trial, SCEDS: Single case experimental design series, SCS: Single case study, SSED: Single Subject Experimental Design, UPT: Uncontrolled pilot trial.

Measures: AAQ: Acceptance and Action Questionnaire, AAQ-II: Acceptance and Action Questionnaire–II, ACQ: The Anxiety Control Questionnaire, ADIS-IV: Anxiety Disorders Interview Schedule for DSM-IV, ASI: The Anxiety Sensitivity Index, AQ: Autism Spectrum Quotient, BAI: Beck Anxiety Inventory, BDI: Beck Depression Inventory, BDI-II: Beck Depression Inventory–II, BSI: Brief Symptom Invetory, CBQ: Cognitive Biases Questionnaire, CERQ: Cognitive Emotion Regulation Questionnaire, CES-D: Center for Epidemiologic Studies-Depression Scale, CFQ: Cognitive Fusion Questionnaire–7, CGI: Clinical Global Impression, CGI-I: Clinical Global Impression-Improvement Scale, CSQ: Client Satisfaction Questionnaire, DASS-21: Depression, Anxiety and Stress Scales-Short Form, DES: Dissociative Experience Scale, DM: Defusion Measure, DOSC: Dimensional Obsessive-Compulsive Scale, DTS: Distress Tolerance Scale, FFMQ: Five Facet Mindfulness Questionnaire, FQ: Fear Questionnaire, HDRS: Hamilton Depression Rating Scale, KIMS: Kentucky Inventory of Mindfulness Skills, MAAS: Mindfulness Attention Awareness Scale, MADRS: Montgomery and Asberg Depression Rating Scale, MASQ: The Mood and Anxiety Symptom Questionnaire, MAX: Maladaptive and Adaptive Coping Scale, MCQ-30: Metacognitions Questionnaire, MINI: Mini International Neuropsychiatric Interview, MOCI: Maudsley Obsessive– Compulsive Inventory, OBQ-44: Obsessional Beliefs Questionnaire – Revised, OCBQ: Obsessive– Compulsive Beliefs Questionnaire, OCI: Obsessive Compulsive Inventory, OCI-R: Obsessive Compulsive Inventory–Revised, Padua-IR: Padua-Inventory Revised, PCL: Paranoia Checklist, PHLMS: The Philadelphia Mindfulness Scale, PHQ-9: Patient Health Questionnaire for Depression, PI: The Padua Inventory, PIOS: Penn Inventory of Scrupulosity, PI-WSUR: The Padua Inventory-Washing State University Revision, PSWQ: The Penn State Worry Questionnaire, QOLI: The Quality of Life Inventory, QOLS: Quality of Life Scale, QOLS-SF: Quality of Life Scale Short Form, RRS: Ruminative Response Scale, SBQ-R: Suicidal Behaviors Questionnaire-Revised, SCID: Structured Clinical Interview for DSM-IV-TR Axis I Disorders, SCL-90-R: Symptom Check List-90-R, SCS: Self-Compassion-Scale, SCSORF: Santa Clara Strength of Religious Faith Questionnaire, SDS: Sheehan Disability Scale, STAI: State Trait Anxiety Inventory, TAF: Thought Action Fusion Scale, TAS-20: Toronto Alexithymia Scale-20, TCQ: Thought Control Questionnaire, TFI: Thought Fusion Instrument, TMS: Toronto Mindfulness Scale, VAS: Visual Analog Scales, WBSI: The White Bear Suppression Inventory, WHOQOL-BREF: World Health Organization Quality of Life–abbreviated, WMWS-S: Short Warwick-Edinburgh Mental Well Being Scale, WSAS: The Work and Social Adjustment Scale, WSQ: Web Screening Questionnaire, Y-BOCS: Yale-Brown's Obsessive Compulsive Scale, Y-BOCS SF: Yale-Brown's Obsessive Compulsive Short Form, Y-BOCS SR: Yale-Brown's Obsessive Compulsive Self Report.

the number of weekly sessions was 1; In the therapies conducted in group format, it was observed that the number of group members varied between 3-10 and the session duration varied between 90 and 120 minutes. (Miegel et al. 2020).

When the researches applied on ST were examined; it was observed that ST was applied individually, the number of sessions varied as 12, 15 and 28, and the duration of sessions varied as 50 and 90 minutes (Sokman and Steketee 2007, Leahy 2007, Thiel et al. 2016).

In the only study including the effectiveness of DBT in OCD that was examined in this rewiew; It was determined that DBT was applied in individual format, as 8 sessions, 1 time per week and 90 minutes. (Ahovan et al. 2016).

It has been determined that Third Wave Therapies are generally carried out by mental health experts, especially clinical psychologists (Kumar et al. 2016). In a study examining the effectiveness of group therapy, it was observed that the clinical psychologist was accompanied by an individual who had previously received OCD treatment and recovered (Papageorgiou et al. 2018).

Therapy manuals and techniques used

In studies evaluating the effectiveness of ACT, manuals belong to Twohig, Hayes, and Masuda (2006) were mainly followed and psychological defusion, self as context, mindfulness, clarification of values, engagement with value-based activities, and processes such as preventing relapse was targeted. In this context; it was determined that components such as assigning and reviewing homework, behavioral commitment and defusion exercises, and using metaphors were included. (Twohig et al. 2010a, Twohig et al. 2010b, Twohig et al. 2015, Rohani et al. 2018).

In the studies where the effectiveness of MB CT is evaluated; using the adapted version of the program developed by Segal, Williams and Teasdale (2013) for depression, and in this manual, components such as; mindfulness, homework and review of homework, meditation, body scanning, questioning, thoughts and emotions exercise, pleasant events calendar, mindfulness have been observed. (Selchen et al. 2018, Landmann et al. 2020).

In another study in which the adaptation of "MB CT for Depression: a new approach to prevent relapse" program described by Segal et al. (2002); it was observed that components such as; mindfulness, refocusing attention, challenging metacognition, body scanning, mindfulness, relapse prevention were studied (Hertenstein et al. 2012, Key et al. 2017)

In studies examining the effectiveness of MCT; It is seen that MCT techniques targeting 8 cognitive bias determined by the Obsessive Compulsive Cognitions Working Group (1997, 2003, 2005) were used. These cognitive biases; perfectionism and intolerance to uncertainty, thought action fusion and thought control, overestimation of danger and exaggerated sense of responsibility, biased attention and biased cognitive network were reported (Miegel et al. 2020).

It was seen that targeting these cognitive biases as well as Wells' (1997, 2009) treatment approach were frequently used. In this context, therapy aiming to challenge metacognitive

beliefs; psychoeducation (Papageorgiou et al. 2018), includes components such as treatment, relapse prevention (Papageorgiou et al. 2018), detached mindfulness, questioning the evidence, and advantage-disadvantage analysis (Papageorgiou et al. 2018), participation of the family member to the treatment (Melchior et al. 2018).

Studies using myMCT (Moritz 2010, Moritz and Hauschildt 2011, 2016) which is a self-help manual and developed based on the Cognitive Therapy tradition, to evaluate the effectiveness of MCT in OCD, has been predominant. Within the scope of myMCT, which targets the cognitive distortions frequently seen in OCD, psychoeducation identification of metacognitive beliefs and replacement of dysfunctional coping strategies with alternatives, association splitting components (Moritz et al. 2010, Hauschildt et al. 2016).

In studies conducted to evaluate the effectiveness of other Third Wave Therapies in OCD, it is seen that the manual of Linehan (2013) is used in DBT and this manual includes components of stress tolerance, emotion regulation, mindfulness, and interpersonal skills (Ahovan et al. 2016).

It was determined that the manuals of Frost and Steketee (2002) and Stelzer et al. (2011a) were used in ST. It is understood that there are components such as psychoeducation, determination of schema modes and use of schema specific in the Schema Therapy manuals and also ERP (Sokman and Steketee 2007, Leahy 2007, Thiel et al. 2016).

Effectiveness of the therapy types used in studies

Acceptance and commitment therapy

The information regarding the researches included in this review and examining the effectiveness of ACT in the treatment of OCD is summarized in Table 1.

In the research conducted to investigate the effectiveness of ACT for OCD; it was determined that the self-report compulsions of all participants decreased and the gains were maintained in a 3-month follow-up. All participants were found to have positive changes in their anxiety and depression levels, reduced experiential avoidance, the credibility of obsessions, and the need to react to obsessions, and they found the treatment quite acceptable. (Twohig et al. 2006).

In the study conducted to examine the effectiveness of ACT in 3 patients who were diagnosed with 3 different Anxiety Disorders, one of which was OCD; After the 12-week therapy program, it was determined that the participants had a significant decrease in their anxiety and stress levels, together within the changes in of assesment tools associated with ACT (decrease in experiential avoidance, increase in acceptance and mindfuless skills) and increase in their quality of life (Eifert et al. 2009).

In a study conducted to compare the effectiveness of ACT and progressive muscle relaxation training (PMRT) in individuals with OCD; It has been determined that ACT

causes more changes in Y-BOCS in terms of OCD severity, after treatment and in follow-up. In addition, it was observed that it caused more changes in terms of depression among the participants who reported at least mild depression before treatment. Clinically significant change in OCD severity was also seen more in the ACT group. Quality of life improved in both groups, but there were very few findings in favor of ACT in the post-test. Treatment refusal was 2.4% in ACT, 7.8% in PMRT; It was observed that the rate of drop out from treatment was low in both conditions, as 9.8% in ACT and 13.2% in PMRT (Twohig et al. 2010a).

In the study aiming to determine the differences or similarities of ACT, CT or ERP treatments in 6 participants with a diagnosis of OCD; visual analysis supported by statistical analysis showed that these symptoms of the participants with obsessions, compulsions, or both decreased in all three treatment conditions. According to visual analysis; 1 participant in the ACT group showed the highest overall change in psychological flexibility. Other participants showed similar changes in general (Twohig et al. 2010b).

In the research conducted to evaluate the effectiveness of ACT in scrupulosity-based OCD; treatment has led to reductions in OCD symptoms. It was observed that the gains were maintained increasingly until the 3-month follow-up (Dehlin et al. 2013).

In the research conducted to evaluate the effectiveness of ACT for OCD; It has been determined that the treatment leads to a decrease in OCD, depression and anxiety symptoms. It was observed that these gains were preserved during follow-up (Vakili and Gharraee 2014).

In the study conducted to examine the changes in psychological flexibility level of patients receiving ACT treatment for OCD during the sessions; it was determined that the treatment effect was gradual and that ACT was significantly more effective in the last 2 sessions**.** It was found that the change in psychological flexibility predicted the change in OCD better than the change in OCD severity predicted the change in psychological flexibility. It was determined that the psychological flexibility level after treatment mediated the decrease in OCD severity from pre-treatment to follow-up (Twohig et al. 2015).

In a study conducted to compare the effectiveness of ACT, SSRI and combination of ACT and SSRI in individuals with OCD; it was observed that ACT (44%) and combined treatment (40%) resulted in significantly greater improvement in OCD symptoms and experiential avoidance compared to only SSRI (12.5%) treatment. No significant difference was found between ACT and combined therapy in terms of its effect on OCD symptoms or experiential avoidance. While 22% of those in the ACT group and 20% of those in the combined group reached complete remission, no participant in the SSRI group could reach complete remission. It was reported that a total of 5 (3 SSRI, 1 ACT, 1 combined) participants dropped out from the treatment. (Vakili et al. 2015).

In the single case study, ACT with ERP intervention was applied to a female participant with a diagnosis of OCD. It was determined that there was a reliable positive change in the Y-BOCS scores. In addition, the participant reported improvements in her well-being (Wheeler 2017).

In the study conducted to examine the effects of adding Group ACT to the treatment of OCD patients receiving SSRI treatment; After treatment, it was determined that there were significant decreases in Y-BOCS and BDI-II scores in both conditions, but significant decreases in ACT with SSRI condition were higher in follow-up. Significant improvements were found in Ruminative Response and Acceptance and Action Scales after treatment and in follow-up, compared to SSRI, in the condition of ACT with SSRI. In the ACT condition, it was reported that there was no drop out during the treatment (Rohani et al. 2018).

In the study that was conducted to compare the effectiveness of traditional ERP with the combination of ACT and ERP; both treatments led to a reduction in OCD and depression symptoms. However, no difference was found between groups. It has been observed that the gains were also preserved in follow-up (Twohig et al. 2018).

In the case study conducted in order to determine whether the changes are specific to ACT in psychological flexibility during individual ERP and ACT combined treatment in individuals with OCD; the participants randomly started with shorter ERP (4 sessions) followed by ACT (4 sessions) and finally longer ERP (8 sessions) or before the longer ERP (8 sessions) followed by ACT (4 sessions) and finally they were assigned to one of the (4 sessions) conditions. OCD scores showed that 3 out of 4 participants responded to the treatment. Both conditions were found to have a positive effect on psychological flexibility (Thompson et al. 2021).

Mindfulness based therapies

Information on the studies examining the effectiveness of Mindfulness Based Therapies in OCD treatment is summarized in Table 2.

In the study, which aimed to evaluate the effectiveness of the Mindfulness Based Stress Reduction program in a patient with an OCD diagnosis who refused medication and ERP, it was determined that there was a clinically significant decrease in OCD symptoms and an increase in the capacity to transition to mindfulness (Patel et al. 2007).

In the study which was conducted to examine the effectiveness of Mindfulness-Based Therapy, 3 participants first received a relaxation control intervention, followed by 6 sessions of mindfulness-based intervention. After the therapy, all participants' Y-BOCS scores fell below the clinical level. 2 participants also continued their therapy gains in follow-up. Qualitative analysis of feedback received after therapy; it was pointed out that mindfulness skills such as observation, mindfulness and acceptance were evaluated by the participants as helpful in coping with thought-action fusion and suppression. The obtained findings; It was pointed out that mindfulness may be beneficial in some individuals who experience intrusive unwanted thoughts. (Wilkinson-Tough et al. 2010).

In the case study conducted to evaluate the effectiveness of using the Buddhist mindfulness practice in therapy; before the client had to start rumination, the ability to notice the first emergence of thought increased; he reported that when he noticed that some of his/her symptoms began to reappear, he was able to identify them early and take corrective actions

using the mindfulness techniques learned in therapy (de Zoysa 2011).

In a qualitative study aiming to evaluate the subjective experiences of individuals diagnosed with OCD who have received BT with ERP in the last 2 years regarding group MB CT; It was determined that the participants evaluated the treatment as helping them to cope with OCD and problems related to OCD. 2/3 of the participants reported a decrease in OCD symptoms and listed the benefits of treatment as an increase in their ability to let their negative feelings rise to the surface and to live more consciously now. It was observed that 4 participants dropped out from the treatment within the first 3 sessions (Hertenstein et al. 2012).

In an experimental study aiming to examine the effect of Mindfulness Based instruction on the obsessive thoughts of individuals with OCD compared to the distraction method during short-term exposure to obsessive thoughts; it has been determined that the mindfulness-based strategy decreases the anxiety and the urge to neutralize (Wahl et al. 2012).

In a study conducted to examine the effect of mindfulness based group training on OCD symptom rates of individuals diagnosed with OCD; the effect of training on obsession and washing/cleaning, approval, slowing down, and obsessive hesitation symptoms was found to be significant (Madani et al. 2013).

In the study conducted to examine the effectiveness of Mindfulness Based training applied in the self-help form in OCD compared to the progressive muscle relaxation applied in the self-help form, it was observed that there was no change in any assesment tool under in any condition. However, all participants who did the mindfulness exercises reported that the handbook was useful. The researchers concluded that this results might be related to the implementation of interventions as self-help (Cludius et al. 2015).

In the study conducted to evaluate the effectiveness of Mindfulness Integrated CBT in OCD where obsessions are dominant; in addition to a 56% reduction in the severity of obsession, the treatment also reduced the depression and anxiety levels of the participants. It was determined that 67% of the participants reached remission. It was indicated that the post-test and follow-up assesments could not be taken from 1 participant and, from another participant only the follow-up measurement was also not able to obtained (Kumar et al. 2016).

In the study conducted to evaluate the effectiveness of MB CT for individuals diagnosed with OCD who have partially improved with the CBT focused on ERP; treatment resulted in clinically significant reduction in OCD symptoms of 23.1% of the participants. In addition, the participants reduced depression and anxiety symptoms; it led to an increase in mindfulness skills and self-compassion levels. It was determined that 5 participants dropped out from the treatment (Key et al. 2017).

In a qualitative research conducted in order to qualitatively evaluate the acceptability and perceived benefit of MB CT for individuals with OCD diagnosed who suffer from residual symptoms after CBT; Participants reported a decrease in verbally perceived OCD symptoms and an increase in mindfullness and coping skills. It is also stated that they found

the treatment highly acceptable and their quality of life generally increased after therapy (Sguazzin et al. 2017).

In the study conducted to test the effectiveness of the group MB CT, which is specific to OCD, in individuals seeking treatment for OCD; before participants receiving CBT were randomly assigned to MB CT group intervention or after 14 weeks of CBT to MB CT group intervention condition. In both MB CT group intervention conditions, significant changes were observed after treatment compared to pre-treatment. As a result of MB CT applied both as a stand-alone treatment before other first line treatments and as a supplementary treatment in patients who only partially respond to CBT; large and significant reductions in obsessive-compulsive symptoms from pre-treatment to post-treatment period showed the possible effectiveness of MB CT for OCD (Selchen et al. 2018).

In the study conducted to compare MB ERP group therapy and ERP group therapy; it was observed that MB ERP did not cause clinically significant more improvement in OCD symptom severity compared to ERP, but it provided medium/medium-large improvement in mindfulness level. (Strauss et al. 2018).

In the study conducted to evaluate the effectiveness of MB CT; treatment was more beneficial for those with moderate (0.6/12%) and severe (61%, 8/13) symptoms compared to those with mild symptoms; The effect size of the change in Obsessions/Compulsions and Somatization subscale scores was higher than the other subscales; It was observed that depressive symptoms decreased and mindfulness skills increased (Didonna et al. 2019).

In the research conducted to examine the effectiveness of MB CT as a complementary treatment option; according to Y-BOCS after treatment; it was observed that MB CT did not have a significant effect on CT-ERP. But according to OCI-R; the effect size was found to be. 053. The improvement in secondary outcomes such as response rate and obsessive beliefs and quality of life was significantly greater in the MB CT group. Obsessive-compulsive symptoms improved more in both groups at the 6-month follow-up, and the group differences lost their significance. According to this; it was concluded that MB CT provided accelerated improvement in OC symptoms and secondary outcomes based on self-report compared to the psychoeducational program. During the mid-period of treatment, both interventions were similar and stable, but with little improvement. According to this; it was concluded that additional treatment options may be required. It was stated that the rate of discontinuing for the treatment is less than 10% (Külz et al. 2019).

In the study conducted to compare the effectiveness of Cognitive Restructuring and Detached Mindfulness for OCD; Both treatment groups were found to be better than the waiting list, and both were equally effective in reducing OCD symptoms. 40% of the participants showed a clinically significant change in both treatment conditions. It was determined that there were 3 participants who dropped out from the treatment (Rupp et al. 2019).

In the study conducted to evaluate the long-term effectiveness of MB CT in OCD patients with residual of symptoms after CBT compared to the psychoeducation group

as an active control condition; There was no difference between the two conditions, with OCD symptoms from baseline to greater effect size on follow-up. Symptom reduction at 12-month follow-up was found to be similar in both conditions. However, preliminary evidence indicated that MB CT had a superior effect on some elements of OCD. It was found that the level of frustration stress associated with obsessive thoughts and time spent with obsessive thoughts differed between conditions; The reduction in the MB CT group was found to be stronger. At the 12-month follow-up, the treatment completion rate was 80% (Cludius et al. 2020).

In a study conducted to examine the changes in daily life experiences after MB CT applied to patients with residual symptoms OCD diagnosis after CBT; Participants in the MB CT condition did not experience significant changes in terms of positive mood, negative mood, acceptance of immediate emotions, or stress associated with obsessive-compulsive symptoms compared to the psychoeducation condition. In MB CT group; Presence of immediate obsessive-compulsive symptoms in post-treatment evaluation led increased insight. This indicates that the participants' ability to distance themselves from obsessive-compulsive symptoms improved as soon as the symptoms appeared. (Landmann et al. 2020).

Metacognitive therapy

Information on studies examining the effectiveness of MCT in OCD treatment is summarized in Table 3.

A single-subject case design was used in the study, which aimed to evaluate the effectiveness of Metacognitive Therapy developed based on Wells' metacognitive model for OCD and was conducted with 4 consecutive cases. It was determined that there were clinically significant changes in the outcome measures of all participants after the treatment. In addition, it was observed that these gains were maintained during the 6-month follow-up. Based on these findings, the researchers concluded that Metacognitive Therapy could be effective for OCD (Fisher and Wells 2008).

The sample of the study aiming to examine the effectiveness of group MCT in OCD consisted of 8 participants, aged 21-58, diagnosed with OCD in the clinical group setting. The obtained findings indicated that all participants showed improvement in OCD symptom severity and metacognition scales. In addition, in the 3-month follow-up assesment, it was determined that 7 participants improved according to Y-BOCS (Rees et al. 2008).

In the research conducted to evaluate the effectiveness of the self-help metacognitive training program in OCD; Participants in the intervention group had significantly greater improvement in OCD symptoms according to their Y-BOCS total score compared to those on the waiting list. This improvement were especially for obsessions. In the OCI-R and BDI-Short Form, there were differences ranging from moderate to strong. The first evidence of the effectiveness of the Self-help metacognitive training program for OCD was obtained (Moritz et al. 2010).

In the study conducted to compare the effectiveness of MCT, Fluvoxamine and MCT

with Fluvoxamine in the treatment of patients with OCD; it was determined that all patients in the MCT and combined therapy groups improved significantly more in terms of OCD severity, depression and anxiety after treatment compared to pharmacotherapy. However, it was observed that there was no difference between MCT and combined treatment interventions. Based on this, researcher concluded that adding drugs to the treatment may not increase the effectiveness of the MCT (Shareh et al. 2010).

In the study aiming to examine the effectiveness of MCT in individuals diagnosed with OCD with pure obsessions; it was determined that the participants used implicit rituals and compulsive behaviors in response to their obsessions. With those findings obtained; It has been determined that MCT is effective in reducing obsessive-compulsive symptoms and changing fusion and metacognitive beliefs (Andouz et al. 2012).

In the study conducted to examine whether MCT given by video conference method is effective in OCD; it was indicated that the participants had significant decreases in their depression, anxiety and stress levels in addition to OCD symptoms. It was also observed that these gains were preserved during the 6-8 week follow-up period after the treatment (Fitt and Rees 2012).

In the research conducted to examine the effectiveness of myMCT developed for OCD, it was indicated that the participants benefited significantly from both myMCT and psychoeducation, but after 4 weeks of treatment, myMCT had a stronger effect in reducing OCD symptoms in terms of Y-BOCS total score, obsessions, depression and cognitive biases. In the 6-month follow-up, it was observed that the cognitive bias scores of the participants in the myMCT condition decreased (Hauschildt et al. 2016).

In the study conducted to evaluate the effectiveness of MCT in individuals diagnosed with OCD; it was determined that MCT provided a significant and greater reduction in all outcome variables after treatment and during follow-up. Most of this reduction has been shown to be a clinically significant change. It was determined that 74% of the patients recovered after treatment and 80% during follow-up according to Y-BOCS. In addition, 63% of the patients after treatment and 80% of them during the follow-up did not meet the OCD diagnostic criteria any longer. It has been reported that the rate of drop out from treatment was 25% in the active treatment phase of the treatment and 12% in the 3-month follow-up (van der Heiden et al. 2016).

In the study conducted to examine the acceptability of MCT for OCD in addition to inpatient treatment; it was indicated that MCT has high acceptability and added-value. 89.7% of the participants evaluated the treatment as a useful and understandable type of treatment, thus can recommend to others. Approximately 80% of them stated that they think education is an important part of the treatment and makes it easier for them to understand the disorder, 44.7% of them have reduced their compulsions and 42.1% their obsessions through education (Jelinek et al. 2018a).

In the study aiming to examine the acceptability and benefits of the therapist-supported Association Splitting (AS) method in addition to CBT; 109 patients diagnosed with OCD undergoing CBT were randomly assigned to the AS or Cognitive Remediation (CR)

group. All groups were evaluated at baseline, at 4 weeks, and after 6 months. Although the acceptance rate of the AS by the participants was found to be good, the benefits of AS in terms of general symptom severity were not better than the CR. However, the biggest decrease in avoidance was seen in the AS group from the baseline rate to 6-month follow-up. Moreover, secondary analyses excluding control patients who had information about AS indicated the superiority of AS. Therefore, the researchers concluded that the effect of contagion should be considered as significant (Jelinek et al. 2018b).

In the research conducted to examine the effectiveness of MCT in OCD; After the treatment, it was observed that the patient did not meet OCD symptoms according to DSM-IV. his scores on the Y-BOCS and Padua Inventory and his metacognition related to OCD decreased. Based on this, researchers concluded that the improvement of metacognitive beliefs is a specific agent responsible for treatment gains. It was observed that the gains were maintained during the 3-months of follow-up. It was reported that the participant did not drop out from the treatment (Melchior et al. 2018).

In the study conducted to evaluate the effectiveness of myMCT, which is a self-help manual for OCD, in individuals who reported that they were diagnosed with OCD; It was found that the participants in the myMCT group had a significant decrease in the obsessive-compulsive symptoms according to Y-BOCS with the large effect size, and there was a greater decrease in the OCI-R, PHQ-9 and CBQ scores (Moritz et al. 2018).

In the cohort study designed to evaluate whether MCT is advantageous for the participants in the routine OCD clinical service; clinically significant results were obtained above or equivalent to group CBT. Y-BOCS, BDI and The Work and Social Adjustment Scale scores were found to decrease after the treatment. It was determined that the rate of response to treatment was significantly higher in group MCT. While the clinical response rate to treatment was 64% in group CBT, this rate was found to be 86.3% in group MCT. Drop out rates were 7.4% for MCT and 9.6% for CBT (Papageorgiou et al. 2018).

In the study aiming to examine the session-specific effects of the group MCT in OCD, which aims to investigate cognitive bias; it was determined that the thought control module significantly reduced the participants' thought control. It was also observed that thought monitoring, thought control, obsessions and compulsions improved during the treatment process (Miegel et al. 2020).

Schema therapy

Information on studies examining the effectiveness of schema therapy in the treatment of OCD is summarized in Table 4.

In the case study conducted to examine the effectiveness of Emotional Schema Therapy in OCD; it was determined that the case improved gradually during the treatment and the ability to control compulsions decreased and disappeared (Leahy 2007).

In the case study conducted to examine the effectiveness of Schema Based Therapy in OCD; it was determined that the Y-BOCS score of the patient decreased after the treatment

and the patient maintained her gains in 5 years of follow-up (Sokman and Steketee 2007).

The sample of the study, which aims to examine the effectiveness of 12-week inpatient treatment including ERP with Schema Therapy in OCD, consisted of 10 inpatients with a diagnosis of OCD and no response from CBT with ERP. Obtained findings; there was a significant decrease in scale scores and the gains were preserved in the 6-month follow-up (Thiel e al. 2016)

Dialectical behavior therapy

Information on studies examining the effectiveness of dialectical behavior therapy in the treatment of OCD is summarized in Table 5.

The sample of the quasi-experimental study, which aims to examine the effectiveness of Dialectical Behavior Therapy on the clinical signs and emotion regulation skills of individuals with OCD, consisted of 30 participants, 15 of which were in intervention group and 15 in control group. In the intervention group; the obsessive-compulsive symptoms were reduced and cognitive emotion regulation were improved. Based on these findings, the researchers concluded that DBT alleviated OCD by regulating the emotional responses of the participants (Ahovan et al. 2016).

Discussion

Upon seeing that CBT has some limitations as well as its proven effectiveness in the treatment of OCD, it is understood that researchers have turned to Third Wave Therapies either alone or as a complementary treatment option. Based on this, in this review study, published 47 studies in the last 16 years that evaluated the effectiveness of Third Wave Therapies on the obsessive-compulsive symptoms of adult individuals with OCD were reviewed. The methodological features of these studies and the effectiveness of the intervention methods they applied were examined.

As a result of this review, it was determined that Mindfulness Based Interventions were the type of therapy whose effectiveness in OCD treatment was examined most frequently, followed by ACT, MCT, ST and DBT. Studies that investigating the effectiveness of Compassion-Focused Therapy, Functional Analytical Psychotherapy, Integrative Emotion Regulation Therapy and Emotion Regulation Therapy in OCD could not be reached. It is thought that it would be beneficial to examine the effectiveness of these types of therapy in OCD, especially the Integrative Emotion Regulation Therapy (Vatan 2016), which is widely studied in Generalised Anxiety Disorder.

When the findings obtained regarding the results of a Third Wave Therapy types are examined on the effectiveness in OCD; it was observed that the higher positive effect of ACT on OCD compared to progressive muscle relaxation (Twohig et al. 2015) and pharmacotherapy (Vakili et al. 2015), and lower rates of drop out from treatment and addition of ACT to SSRI treatment resulted in greater improvement in obsessive-compulsive symptoms (Rohani et al. 2018). Furthermore, it was determined that ACT is effective in reducing depression and anxiety symptoms (Twohig et al. 2006, Vakili and Gharraee 2014) as well as causing an improvements in the level of psychological flexibility

(Twohig et al. 2010b) and quality of life (Twohig et al. 2010a, Dehlin et al. 2013), but the addition of ACT to ERP did not provide benefit over ERP (Twohig et al. 2018). These findings are thought to be the first evidence for the effectiveness of ACT in OCD, both alone and as a complementary treatment besides pharmacotherapy. This result is consistent with the positive relationships between the Acceptance and Action Scale results and the severity of anxiety and disorder as a result of a meta-analytical review of the effectiveness of ACT in anxiety and obsessive-compulsive spectrum disorders, and the support for the effectiveness of ACT in OCD (Bluett et al. 2014).

The sample of the studies on the effectiveness of MB CT is mainly composed of participants who was previously received CBT with ERP or only CBT but having residual symptoms. In a randomized controlled study in this direction, MB CT did not cause a significant change in terms of obsessive-compulsive symptoms compared to the psychoeducation control condition, but it caused improvement in some OCD elements such as time spent on obsessive thoughts and stress associated with obsessive thoughts (Cludius et al. 2020). In another randomized controlled trial, it was determined that MB CT leads to a greater decrease in depression and anxiety symptoms, as well as a decrease in obsessive-compulsive symptoms, and increases mindfulness skills and self-compassion level compared to thewaiting list control condition (Key et al. 2017). In a study comparing MB CT before CBT with MB CT after CBT, it was determined that there were significant improvements in obsessive-compulsive symptoms in both conditions. This was interpreted by the researchers as that MB CT could be effective both alone and as a complementary treatment option in OCD (Selchen et al. 2018).

It was determined that MCT could be applied in different formats for the treatment of OCD, including individual, group, self-help and video conference-based formats. In a study evaluating the effectiveness of MCT in terms of OCD symptoms and the benefits of MCT over CBT groups, it was observed that the response rate of MCT was higher and provided significant improvements (Papageorgiou et al. 2018). In addition, it was determined that myMCT, which is the manual in the self-help format of the MCT, was also effective in the symptoms of obsessive-compulsive and depression, especially obsessions, and there were studies indicating that MCT in the form of videoconferencing was also effective in obsessive-compulsive, depression, anxiety and stress symptoms (Moritz et al. 2018).

The only study on the effectiveness of DBT in OCD and three studies on ST indicate that these therapies are administered in an individual format and reduce OCD symptoms (Sokman and Steketee 2007). In addition, DBT; it was seen that it improved cognitive emotion regulation skills (Ahovan et al. 2016). Although it could be said that they are likely to be effective based on these findings, due to the very limited number of studies available examining the effectiveness of DBT and ST in OCD treatment, it was thought that extreme caution should be exercised in making inferences about this issue and more randomized controlled studies are needed before making definitive inferences about their effectiveness. Researches aimed at examining the mechanisms of

change will contribute to the literature after sufficient evidence on their effectiveness is obtained.

Although the studies included in this review are considered as the first evidences of the effectiveness of Third Wave Therapies in OCD, in the systematic review and meta-analysis study conducted by Öst (2008) for randomly controlled studies on the effectiveness of Third Wave Therapies; it was seen that these studies reached the conclusion that the research methods were less strict compared to the studies on the effectiveness of CBT, and that no therapy type in the context of Third Wave Therapy meets the experimentally supported treatment criteria. It can be said that meta-analysis studies including current study findings on the effectiveness of Third Wave Therapies specifically on individuals diagnosed with OCD were needed in order to reach a definite conclusion on this issue. As a justification for this, It could also be shown that, in addition to the findings suggesting that Third Wave Therapies reduce obsessive-compulsive symptoms, a systematic review of the economic impact of recent Third Wave Therapies on individuals with physical and mental distress found that cost-effectiveness and the rate of cost-profit could be an acceptable level (Feliu-Soler et al. 2018).

When the researches included in the review are evaluated in terms of methodology; It was observed that the studies were mostly in a single-subject case study or randomized controlled study design. Although the waiting list control group was generally used as the comparison group in studies, active control condition (psychoeducation), progressive muscle relaxation, only pharmacotherapy, combined therapy with pharmacotherapy, CBT and ERP are used or the comparison group is not included, It was determined that the effectiveness of the treatments examined with only pre-test and post-test and follow-up assesments design. In this context, It is thought that it might be beneficial to conduct randomized controlled trials involving comparison of Third Wave Therapy types with ERP and CBT, which was proven efficacy and was seen as a first line treatment approach. Then, It can be said that comparing the effectiveness of Third Wave Therapies in OCD with each other is necessary to examine their effectiveness. After the evidence regarding their effectiveness becomes more clear, there will be a need to understand the mechanisms of change of these therapies.

Considering that Third Wave Therapies are a relatively new treatment approach, it can be expected that there will be relatively few studies on their effectiveness in OCD. However, all of these studies were conducted abroad and there was a study (Gündoğan et al. 2020), not included in this review because it was conducted with participants with OCD symptoms in our country, no efficiency study was found with a sample of individuals with OCD diagnosis. Studies conducted in our country can contribute to the literature in terms of understanding the effectiveness of Third Wave Therapies and whether these effects differ across culture were considered. However, it was thought that the results reached in this review should be interpreted carefully, considering the small number of studies included.

Conclusion

As a result, according to researches revised in this review, the Third Wave Therapies can be considered as the first evidence that they help reduce OCD and accompanying depression and anxiety symptoms, increase the quality of life, psychological flexibility and mindfulness, and can be a form of intervention with a high rate of continuing treatment and its effect.

Nevertheless, in order to clarify the uncertainties about whether they are beneficial over CBT with ERP or not, it is concluded that there is a need for more randomized controlled trials that include comparing Third Wave Therapies with CBT with ERP, which is seen as the first line treatment in OCD.

In addition, considering that there is no study on the effectiveness of Third Wave Therapies in the treatment of individuals diagnosed with OCD in our country, it can be said that intervention studies on this basis can be useful in reducing the distress of individuals with OCD and increasing their quality of life.

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