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A Review of Panic Disorder and Cognitive Behavioral Therapy

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ABSTRACT

One mental health issue that impacts people's social and professional functioning is panic disorder (PD). Numerous studies have demonstrated the efficacy of cognitive behavioral therapy (CBT) in treating PD, making it a well-known intervention technique in the field of mental health. CBT integrates cognitive strategies and behavioral interventions in the treatment of PD and fosters more adaptive cognitive patterns by challenging negative automatic thoughts, thereby enhancing emotional regulation and interpersonal functioning. At the same time, behavioral techniques such as exposure and systematic desensitization equip individuals to confront and manage panic-inducing situations. Third-wave cognitive behavioral therapies, such as Acceptance and Commitment therapy, Metacognitive Therapy, Mindfulness-Based Cognitive Therapy, and Schema therapy, assist with symptom management through various methods. This clearly demonstrates that these therapies are effective interventions for managing PD, reducing its severity, and ensuring that the benefits persist after the treatment period.

Keywords: Panic disorder, panic attack, cognitive behavioral therapy.

ÖZ

Panik Bozukluk ve Bilişsel Davranışçı Terapi Üzerine Derleme

Panik bozukluk, bireylerin sosyal ve mesleki işlevselliğinde ciddi düşüşlere neden olan ruhsal bir bozukluktur. Panik bozukluk tedavisinde, bilişsel davranışçı terapi yaygın olarak kullanılan ve etkinliği kanıtlanmış bir yöntemdir. Bu tedavi hem bilişsel süreçleri hem de davranışsal müdahaleleri içerir; bu nedenle panik bozukluğu tedavi etmede bütünsel bir yaklaşım sunar. Bilişsel davranışçı terapi, kişinin olumsuz otomatik düşüncelerini daha işlevsel ve gerçekçi olanlarla değiştirmelerine yardımcı olurken, maruz bırakma ve sistematik duyarsızlaştırma teknikleri kişinin panik atakları tetikleyen durumlarla yüzleşmelerini sağlar. Üçüncü dalga bilişsel davranışçı terapiler de panik bozukluk tedavisinde önemli bir rol oynamaktadır. Kabul ve Kararlılık Terapisi, Metakognitif Terapi, Farkındalık Temelli Bilişsel Terapi, Şema Terapi gibi üçüncü dalga bilişsel davranışçı terapi yaklaşımları, danışanların psikolojik esneklik kazanmalarına ve panik bozukluk semptomlarını yönetmede daha etkili olmalarına yardımcı olur. Yaptığımız derleme çalışması panik bozukluğun tedavisinde bilişsel davranışçı terapinin ve üçüncü dalga bilişsel davranışçı terapilerin etkili olduğunu ve bu etkilerin tedaviden sonraki süreçte de korunduğunu göstermektedir.

Anahtar Kelimeler: Panik bozukluk, panik atak, bilişsel davranışçı terapi.

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INTRODUCTION

Panic Disorder (PD) is a condition wherein a person is in constant fear of future panic attacks and employs various behavioral changes to prevent triggers that may lead to a panic attack (APA, 2013). A panic episode can be precipitated either before its occurrence or suddenly, as triggered by certain situations (Kessler et al, 2012). According to recent research, the prevalence of PD in the last 12 months is approximately 3% (Walker et al, 2021). Individuals suffering from PD are believed to have a lower quality of life than people who do not have anxiety disorders (Barrera & Norton 2009). Moreover, it has also been mentioned that PD produces quite a pronounced limitation in the functioning of people (Alonso et al, 2004). Cognitive behavioral therapy (CBT) has been found to be effective in several clinical studies (Barlow et al, 2000; Manfro et al, 2008; Pompoli et al, 2016). Numerous studies have confirmed that CBT is effective in treating PD (Gould et al, 1995; Oei et al, 1999; Otto et al, 2001; Butler et al, 2006; Otto et al, 2012; Bruinsma et al, 2016; Otto et al, 2016; Ateş & Arcan 2018). This review comprehensively examined the existing literature on CBT's techniques and effectiveness in treating PD. In this context, the study evaluates the effects of basic CBT techniques, such as cognitive restructuring, exposure, breathing, and relaxation, with a focus on the effect of CBT on PD. The study also addresses the limited research on third-wave cognitive behavioral therapies (e.g., Acceptance and Commitment Therapy, Schema Therapy, Metacognitive Therapy, and Mindfulness-Based Cognitive Therapy) that may enhance the effectiveness of CBT. Additionally, it examines the application of these therapies in the treatment of PD and evaluates their clinical effectiveness.

Panic Disorder

PD is an anxiety disorder characterized by the experience of sudden and intense fear accompanying several bodily sensations and/or cognitive symptoms without a specific external factor, as well as the recurrent experience of unexpected panic attacks (APA, 2013). According to DSM-5, a person is diagnosed with PD if, after experiencing a panic attack, they remain constantly worried about having another one and avoid triggers that may lead to panic attacks to prevent this situation (APA, 2013). Experiencing an important event months before the onset of PD is an important reason for the development of PD. Approximately 80% of people diagnosed with PD may have experienced one or more stressful life events in their lives before the first panic attack (Uhde et al, 1985). PD can result in reduced social and occupational functionality, difficulty in performing daily tasks, diminished quality of life, decreased well-being, and personal stagnation (Fava et al, 2001).

Modern theories on Panic Disorder suggest that biological and psychosocial vulnerabilities, along with an insufficient sense of personal control, are majorly responsible for the incurrence and maintenance of attacks (Suárez et al, 2008). Such models provide an explanation for the catastrophic interpretation of bodily sensations and identify that anxiety sensitivity and intolerance of uncertainty trigger these interpretations. Individuals with Panic Disorder frequently develop heightened anxiety and panic attacks due to a combination of factors; particularly intolerance to uncertainty, which is accompanied by misinterpretations of bodily sensations, thus increasing the frequency and intensity of panic attacks (Carleton et al, 2013).

With the DSM-5, agoraphobia has been considered a separate disorder from PD. People with PD may develop agoraphobia. In the event of a panic attack, individuals may avoid being in environments or situations where help may not be available, or avoidance may be difficult (APA, 2013). The lifetime prevalence rate of PD with agoraphobia as a comorbidity is 1.1%. The lifetime prevalence rate of PD without agoraphobia is 3.7% (Kessler et al, 2006). The presence of comorbid agoraphobia is associated with greater loss of functioning, and a person's level of agoraphobic avoidance can predict their degree of disability (Wittchen et al, 2010).

Cognitive Behavioral Therapy

CBT refers to a set of interventions based on scientific foundations that aim to directly change dysfunctional thinking styles and behavioral patterns to alleviate psychological distress (Hofmann et al, 2013). The main idea underlying CBT developed by Beck (1970) and Ellis (1962) is that maladaptive thoughts cause emotional distress and behavioral problems to persist. According to Beck's model, these maladaptive thoughts form general beliefs or schemas about the world, the self, and the future, with automatic thoughts emerging in certain situations (Beck, 1970; Ellis, 1962). According to one of the basic assumptions of the CBT school, it is possible to create positive changes in emotions and behaviors by reconsidering and reorganizing one's thinking style and cognitive processes (Beck, 2014). Cognitive techniques used in CBT include questioning evidence, exploring options, considering the worst-case scenario, restructuring, and monitoring emotions and thoughts. Behavioral techniques include systematic desensitization, exposure, response prevention, and relaxation (Beck, 2014). In CBT, the client and therapist seek to understand problems by examining the relationship between thoughts, feelings, and behaviors, and the focus of therapy is on the present moment. CBT directly targets symptoms, reduces distress, reappraises thoughts, and promotes helpful behavioral responses. The therapist helps the client manage problems using their resources and teaches specific psychological and practical skills (Leichsenring et al, 2006).

Cognitive Behavioral Therapy for Panic Disorder

CBT interventions for treating anxiety attempt to change maladaptive beliefs about the likelihood and actual effects of future harm. Various cognitive (e.g., thought restructuring) and behavioral (e.g., exposure) techniques are used in this process (Hofmann, 2008; Smits et al, 2012). Several studies have shown the effectiveness of CBT as a treatment method for PD (Telch et al, 1995; Barlow et al, 2000; Otto & Deveney, 2005; Efron & Wootton, 2021). According to the Cognitive Model of Panic developed by Clark (1986) and Beck (1988), panic attacks arise from the misinterpretation of bodily sensations as frightening, dangerous, or fatal. This catastrophizing interpretation leads to a rapid increase in anxiety, followed by heightened arousal and, ultimately, panic attacks (Clark, 1986; Beck, 1988).

The therapy process begins with psychoeducation about the nature and symptoms of PD, aiming to correct misconceptions that these symptoms are harmful. After psychoeducation, a self-monitoring process is initiated to help clients develop objective self-awareness. The participants were asked to record when they experienced panic attacks and during daily periods of anxiety and depression. Cognitive restructuring directly addresses the misinterpretation of bodily sensations during therapy. In this process, therapists guide clients to develop alternative evaluations that are not based on fear or schema but based on their references and evidence, using Socratic questioning (Craske & Barlow, 2007). The treatment process and stages of PD with CBT are described below.

Psychoeducation and Self-Monitoring

Treatment for PD begins with explaining the general appearance and nature of PD, how it starts, why the panic state is caused, and the physical, cognitive, and behavioral cycle in PD to the client, while providing psychoeducation on these issues (Craske & Barlow, 2007). During psychoeducation, the aim is to explain the components that cause anxiety to the client and address myths and false beliefs about panic symptoms. During the psychoeducation process, clients are encouraged to evaluate their beliefs as assumptions rather than absolute truths (Taylor, 2000). Self-monitoring is used to increase objective self-awareness and improve the accuracy of observation. The participants were asked to keep three types of records: noting the level of distress, symptoms, and thoughts after each panic attack; noting daily levels of anxiety and depression; and tracking progress by updating the number of panic attacks and anxiety levels weekly (Craske & Barlow, 2007).

Working with Automatic Thoughts in Panic Disorder

Automatic thoughts occur spontaneously and often quite rapidly. Even if one is rarely aware of these thoughts, one is more likely to become aware of the behaviors and emotions that follow such thoughts (Beck, 2014). According to Wenzel and Cochran (2006), individuals with PD often recall autobiographical memories that are closely related to their automatic thoughts. These thoughts are usually negative and threat-oriented. The recall process is faster and more intense in individuals with PD than in individuals who do not experience anxiety. According to Ottaviani and Beck (1987), clients with PD often misinterpret physical sensations as signs of catastrophic events such as "having a heart attack" or "going crazy." These automatic thoughts are closely linked to the fear of physical or mental catastrophe and can lead to an escalating cycle of panic. According to Goldberg (2001), individuals with PD often experience a cognitive bias that causes them to focus on negative and personally important information, which reinforces their fear and leads to panic attacks. CBT is effective in teaching clients to identify these automatic thoughts, replacing their catastrophic interpretations with more realistic and less threatening thoughts. This process plays an important role in reducing the frequency and severity of panic attacks and helping clients control their emotional reactions. Role-playing or imagery techniques can be applied to individuals during sessions to help them attain warmer cognitions. In this context, when working on automatic thoughts in PD, individuals may be asked to visualize the last panic attack they have experienced and then find the automatic thoughts that went through their mind while experiencing a panic attack (Beck, 2014).

Distraction

Distraction techniques play an important role in the cognitive behavioral treatment of PD and help individuals to distract from anxiety-provoking thoughts and feelings (Barlow, 2002). Studies have shown that distraction techniques combined with CBT contribute to individuals coping with their symptoms more effectively by reducing hypersensitivity to bodily symptoms and catastrophizing tendencies (Schmidt et al, 2000).

Restructuring Automatic Thoughts

Cognitive restructuring helps clients identify and replace their automatic negative thoughts with more realistic and functional ones. For example, a client experiencing palpitations may perceive them as a heart attack; with this technique, the accuracy of this thought is questioned, and the client is made to realize that palpitations are a symptom of anxiety. The therapist offers restructuring strategies by teaching how these distorted thoughts are related to panic attacks. Thus, the anxiety levels of the clients decrease and their severity of panic attacks decreases, enabling them to better understand PD (Strauss et al, 2019).

Cognitive restructuring aims to enable a person to realize erroneous thoughts in the form of catastrophizing to question the validity of these thoughts and to produce more realistic thoughts (Craske & Barlow, 2014). This section aims to identify a person's negative automatic thoughts, and various methods are used for this. With the direct question method, a person can be asked about their thoughts during a panic attack (e.g., "What were you thinking when your heart was beating fast?"). In addition, the behavioral experiments allow the participants to record their thoughts in the presence of similar symptoms. In this process, information about automatic thoughts is provided, and an automatic thought registration form is used. The reality of these thoughts is then assessed. The purpose of CBT is to shake up negative thoughts and develop functional alternatives. The decrease in the person's belief in these thoughts contributes to a decrease in discomfort (Hocaoğlu et al, 2023). Various techniques are used to evaluate negative automatic thoughts. These techniques include examining the evidence, finding alternative explanations, the double-standard technique, finding the worst and best thing that can happen, questioning the effect of believing in automatic thinking on the person, and problem-solving (Beck, 2014). The double-standard technique recognizes and alters negative automatic thoughts. By asking questions such as "What would a friend of yours think if they were going through this?" the person is made to approach the situation more objectively. When viewed from someone else's perspective, the subjectivity of the emotional reaction decreases, and the person can evaluate the event more objectively (Türkçapar, 2018).

Breathing Exercises and Progressive Muscle Relaxation

When a person experiences anxiety, their breathing may accelerate. This may cause mild discomfort or may be intense and severe enough to cause panic attacks. Breathing exercises can be taught to individuals to control their breathing during a panic attack (Hocaoğlu et al, 2023). Progressive muscle relaxation is a technique that allows the whole body to relax through voluntary and progressive relaxation of the muscles in the body. It is effective for individuals with high anxiety levels. This technique demonstrates the difference between tension and relaxation and teaches the awareness of muscle tension and the release of these muscles. This technique induces relaxation in the whole body by eliminating muscle contractions (McCallie, 2006; Essa et al, 2017). According to the results of a meta-analysis study conducted by Mitte (2005), for PD without agoraphobia, treatment using CBT combined with applied relaxation was found to be as effective as using each therapy separately. Additionally, both methods, whether used separately or together, were found to be superior to medication. In Barlow et al.'s (2000) treatment model, the exposure of the client to internal sensations plays a central role. This exposure triggers feared sensations through exercises, such as visualization of anxiety scenes, excessive breathing, and spinning. Treatment includes education about panic and its factors and cognitive therapy to change false beliefs. The program also includes progressive muscle relaxation training and homework assignments at different stages (Barlow et al, 2000).

Behavioral Interventions

Behavioral techniques play an important role in treating PD. Instead of avoiding situations that trigger panic attacks, these techniques help clients confront these situations and become desensitized to the stimuli over time. In particular, real-life exposure therapy allows clients to directly confront anxiety-provoking stimuli. Thus, it restructures individuals' reactions to these stimuli and reduce panic symptoms (Ham et al, 2005). Rapid breathing and hyperventilation are the most commonly used behavioral experiments in patients diagnosed with PD. In the treatment, panic attacks are experienced with rapid breathing exercises, and it is shown that this is a natural reaction of the body and not a sign of a major disaster. The client was shown that an attack can be controlled through breathing exercises (Bouchard et al, 1996).

Exposure

Exposure techniques applied within the framework of PD are based on exposing the individual to the bodily sensations that trigger panic attacks and contribute to the maintenance of these attacks (Durna, 2016). The exposure technique eliminates fear and anxiety by reducing avoidance behavior and destructive thoughts. Research has shown that direct exposure to situations that cause intense anxiety can be beneficial; however, gradual exposure is more effective (Fiegenbaum, 1988).

In CBT, exposure and cognitive restructuring techniques are commonly used together. However, studies have shown no significant difference between CBT and behavioral therapy in which only the exposure technique is used (Mitte, 2005; Ougrin, 2011). The most frequently used techniques in these therapies include exposure, cognitive restructuring, and breathing and relaxation training. In a study conducted by Aydın Yeral (2024), 15 meta-analyses investigating the effectiveness of these treatment methods were analyzed, and it was shown that the exposure technique was the most effective factor in the treatment process.

Mechanisms of Cognitive and Behavioral Change in Cognitive Behavioral Therapy for Panic Disorder

Cognitive and behavioral factors affect the persistence of PD. These factors include the individual's level of anxiety sensitivity, panic self-efficacy, and catastrophizing interpretations of events. These factors are addressed as targets in the CBT process to ensure changes in individuals (Sandin et al, 2015).

Level of Anxiety Sensitivity

In general, anxiety sensitivity is the fear of anxiety-related sensations, and anxiety sensitivity is thought to predispose patients to PD. A high level of anxiety sensitivity is considered an effective factor for increasing the likelihood of experiencing more panic attacks and relapse of PD. Therefore, the level of anxiety sensitivity is considered a target in CBT to prevent the recurrence of panic attacks (Scholten et al, 2013).

Panic Self-Efficacy

Within the scope of PD, the perception that a person can control their bodily sensations, emotions, thoughts, or situations related to their panic attack experienced is considered as panic self-efficacy. If a person believes they cannot cope with perceived danger, this situation causes the person's anxiety to continue (Kılıç & Yalçınkaya-Alkar, 2021). Increasing the panic self-efficacy level of the patient during therapy can predict a decrease in panic attacks. At the same time, it has been revealed that the elements adopted by CBT also increase the person's panic self-efficacy (Casey et al, 2005).

Catastrophizing

According to Clark's PD model, symptoms of PD are sustained by catastrophizing interpretations of uncertain physical or mental states, which are defined as catastrophizing (Clark, 1994; Clark, 1996). Catastrophizing interpretations of a person are considered a basic mechanism of change in treatment. In the treatment process, the change in the person's catastrophizing interpretations are examined as factors that reduce the severity of panic symptoms (Hofmann et al, 2007).

Safety-Providing Behaviors

Safety-providing behaviors refer to behavioral factors developed to prevent the threat perceived by the person with a panic attack. The presence of safety-providing behaviors causes persistent anxiety symptoms. People think that catastrophizing thoughts do not occur because they perform safety-providing behaviors (Salkovskis, 1991). While these behaviors include avoiding environments and situations that the person thinks are likely to cause panic attacks (Salkovskis et al, 1996), they also include internal or external measures to prevent panic attacks and seeking reassurance from those around them (Helbig-Lang et al, 2014). It has been shown that the frequent use of reassuring behaviors by individuals in daily life negatively affects the long-term effectiveness of CBT (Beesdo-Baum et al, 2012).

Effectiveness of Cognitive Behavioral Therapy in the Treatment of Panic Disorder

In a meta-analysis study conducted by Bandelow et al. (2018), it was investigated whether the persistence of psychotherapy methods (CBT and other psychotherapy methods) used in the treatment of anxiety disorders, including PD, makes a difference compared with the control groups (drug treatment and placebo). The meta-analysis included 93 studies with 185 study arms (CBT, n=120; other psychotherapies, n=32; medication, n=16; placebo effect, n=17) that included follow-up evaluations of psychological treatment for PD, social anxiety disorder, and generalized anxiety disorder. Because of this study; it was stated that the gains obtained after psychotherapy treatment were preserved for up to 24 months. In addition, the clients who received CBT treatment showed improvement compared with the values at the end of the treatment. It was stated that the clients in the drug group remained stable in the untreated period and that there was no significant difference compared with those who received psychotherapy, whereas the clients in the placebo group showed significantly worse results compared with the clients receiving CBT.

In a meta-analysis study conducted by Cuijpers et al. (2016), the effectiveness of CBT in the treatment of major depression, generalized anxiety disorder, PD, and social anxiety disorder was evaluated. This meta-analysis included studies comparing CBT with a control group, such as a waiting list or placebo. In the 144 included studies, the overall effects were large, and specifically for PD, the effect size was calculated as 0.81. It was concluded that CBT was effective for the treatment of PD.

In a randomized controlled study conducted by Pincus et al. (2010) with adolescents, the effectiveness of Panic Control Treatment in Adolescents was examined. Panic Control Treatment is a Cognitive Behavioral treatment consisting of 11 sessions including psychoeducation, cognitive restructuring, breathing exercise training, exposure to internal perception, and exposure to situations that the individual is afraid of and avoids, aiming to correct the individual's misinformation about panic attacks. In the study, 13 adolescents aged 14–17 years were included in the 11-session Panic Control Treatment in Adolescents group, and 13 adolescents were randomized to the control group. According to the results of the study, there was a significant decrease in the severity of PD, self-reported anxiety, anxiety sensitivity, and depression levels of the adolescents in the treatment group. These treatment gains were maintained at 3- and 6-month follow-ups.

A research study was carried out by Hendriks et al. (2012), which attempted to establish the use of paroxetine along with a CBT program for elderly clients suffering from PD, irrespective of whether they have agoraphobia or not. The study included 49

participants aged above 60 years. The participants of the study were placed into three different categories. The first cohort received 40 mg of paroxetine, the second group received individual CBT sessions, and the third category was assigned to the waiting group over a span of 14 weeks. According to the findings of the study, most of the participants profiled to be using paroxetine and CBT have progressed significantly more than the ones in the control group. According to the study findings, paroxetine and CBT were found to have a positive outcome in elderly patients with PD.

Pompoli et al (2016) conducted a meta-analysis of 60 studies comparing the effect of eight psychological treatments and three control groups for the treatment of PD. Psychoeducation, psychodynamic therapy, supportive psychotherapy, physiology therapy, cognitive therapy, behavior therapy, CBT, and third-wave cognitive behavior therapy people diagnosed with PD with agoraphobia and those without it and face-to-face therapies were examined. The most efficient, reliable, and long-lasting therapies were CBT and psychodynamic therapy.

With technological advances, it became possible to develop internet-based CBT. As indicated by the research conducted by Domhardt et al. 2020, internet-based CBT reduced the symptoms of PD in the same efficient manner as face-to-face CBT. A meta-analysis study by Efron and Wootton (2021) investigated the effectiveness of remote CBT in the diagnosis and treatment of PD. Findings of this study suggest that remote CBT generates appreciable treatment effects, with improvement observed after the intervention.

In a study conducted by Rabasco et al. (2022), studies effective in treating PD were analyzed, and 38 meta-analyses and systematic reviews were discussed. Most of these studies have addressed the effectiveness of CBT. According to the study results, face-to-face CBT was effective in treating PD in adults, especially compared with the control conditions. In addition, with the development of technology, it was also revealed that internet-based CBT or other computer-based CBT applications are suitable alternatives to face-to-face CBT.

In the CBT treatment of patients with PD, combinations of different techniques included in the therapy framework can greatly affect the treatment outcome (Pompoli et al, 2016; Pompoli et al, 2018). Pompoli et al. (2018) conducted a meta-analysis of 72 studies (4064 participants) to evaluate the use of CBT in the treatment of PD. The study showed that interoceptive exposure and face-to-face therapy increased treatment efficacy and acceptability; relaxation techniques and virtual reality therapy resulted in lower efficacy; breathing exercise and real-life exposure increased acceptability but had little effect on efficacy. The highest remission rates were associated with CBT, including face-to-face therapy, placebo effect, psychoeducation, psychosocial support, cognitive restructuring, and interoceptive exposure. However, the least effective CBT included the placebo effect, psychoeducation, psychosocial support, breathing exercises, relaxation techniques, real-life exposure, and virtual reality exposure. In the same study, relaxation techniques and virtual reality exposure were found to reduce the likelihood of treatment response (55 studies, 3275 participants). In terms of treatment discontinuation, the placebo effect was determined as the most significant component (68 studies, 3705 participants) (Pompoli et al, 2018).

CBT uses structured techniques to reduce the physical and cognitive symptoms of panic attacks, anticipatory anxiety, and avoidance behaviors in the treatment of PD and generally improves the functionality of individuals (Kılıç & Yalçınkaya-Alkar, 2021). However, not all individuals showed the same level of improvement. According to Kılıç and Yalçınkaya-Alkar's (2021) review, pretreatment factors include disorder-related characteristics such as age of onset, duration, symptom severity, and impairment in functionality; co-diagnoses such as cardiac and respiratory clients, depression, anxiety, and personality disorders; and the person's social environment conditions. In the treatment process, cognitive and behavioral mechanisms, such as the individual's expectations of therapy, commitment, therapeutic alliance, anxiety sensitivity, and safety behaviors, affect success.

The efficacy of CBT in the treatment of PD can vary according to various factors. For example, early-onset PD is associated with more negative outcomes in terms of panic symptoms (Chambless et al, 2017), whereas late-onset PD may yield more positive results (Hendriks et al, 2012). While it has been observed that symptom severity decreases as the duration of the disorder increases (Nakano et al, 2008), it has been reported that clients with high pretreatment symptom severity initially respond less to CBT, but may have difficulty in maintaining their gains in the long term (Brown & Barlow, 1995). Although experts working in the clinical field generally consider comorbid diagnoses as a factor that prevents the benefit of therapy (Wolf & Goldfried, 2014), experimental studies have revealed that these diagnoses do not always have a negative effect on the course of PD, and that CBT used in the treatment of the disorder can reduce the symptoms of these diagnoses as well as the symptoms of the disorder (Brown et al, 1995).

Social environmental conditions are also an important factor affecting the CBT process. Stressful events may cause symptoms to reappear after treatment, and lack of social support may negatively affect the effectiveness of therapy (Heldt et al, 2011; Wolf & Goldfried, 2014). Therefore, to evaluate the effectiveness of CBT, it is important to consider the factors before and during the treatment of the individual.

Third-wave Cognitive Behavioral Therapies and Panic Disorder

Acceptance and Commitment Therapy in Panic Disorder

Acceptance and Commitment Therapy (ACT) aims to increase psychological resilience through six processes of change: acceptance, cognitive dissociation, staying in the moment, seeing the self as context, values, and behavioral commitments. Each of these processes has received considerable support from outside the treatment programs (Hayes et al, 2006; Ruiz, 2010). The systematic review study conducted by Swain et al. (2013) examined the effectiveness of ACT in the treatment of anxiety. Among these studies, two research articles specific to PD were identified, and these two studies were analyzed. In the first study, among 22 participants, only the group receiving panic control treatment and the group receiving ACT-supported panic control treatment were compared. According to the results of the study, more agoraphobia severity was observed in the group receiving only panic control treatment than in the group receiving ACT, and the participants experienced a higher level of avoidance (Karekla, 2005). The second study is a case study conducted by López (2000). In this study, 12 sessions of ACT were administered. According to the results of the study, the anxiety, worry, and fear levels of the participants decreased significantly.

Use of Schema Therapy in Panic Disorder

According to Martin and Young (2010), Schema Therapy (ST) is a therapy method and theoretical framework based on three main structures consisting of "schemas," "coping styles" and "modes" (Young & Brown., 2003), which is used in the treatment of people with personality disorders, some chronic axis 1 diagnoses, as well as other individual and couple problems (Young, 1990). Gude et al. (2001) examined the effectiveness of a combined cognitive therapy and ST treatment. The study was conducted with 47 participants who had cluster C personality traits and PD and/or agoraphobia. The first 5 weeks of therapy were based on the cognitive model of panic and agoraphobia (Clark et al, 1994). The second part was based on Young's (1990) personality-focused ST and was planned for 6 weeks. All participants were evaluated in terms of their agoraphobic avoidance before, during, after, and 1-year follow-up. According to the results, the agoraphobic avoidance scores were higher before than during treatment and higher after than during treatment. Hoffart et al. (2002) conducted a more comprehensive study. Participants consisted of 35 individuals with cluster C personality disorder, PD, and/or agoraphobia. All participants received at least nine sessions of ST. Participants were evaluated twice before starting treatment, during treatment, after treatment, and at 1-year follow-up after treatment. According to the results of the study, the PD and agoraphobia measurements of the participants decreased significantly after treatment compared with pretreatment.

Use of Mindfulness-Based Cognitive Therapy in Patients with Panic Disorder

Mindfulness-Based Cognitive Therapy (MBCT) is a therapy method that combines elements of the Mindfulness-Based Stress Reduction Program and CBT. Although MBCT mainly focuses on encouraging people to relate to their feelings and thoughts and to adopt a new way of being, it also includes, albeit to a lesser extent, changing or challenging certain cognitions during therapy (Sipe & Eisendrat, 2012). Kim et al. (2013) conducted a study with 65 patients with PD, examining the results of MBCT treatment in terms of potential determinants. The patients were compared according to completion, response to treatment, and remission rates during the 8-week treatment period. The results of the study revealed a significant relationship between the improvement in anxiety sensitivity and the response rate of the participants who completed the treatment program. In addition, improvement in anxiety sensitivity has been reported to reduce symptoms and may predict remission at 1-year follow-up.

Metacognitive Therapy in Panic Disorder

Metacognitive Therapy (MCT) is a transdiagnostic treatment method that aims to change the processes leading to cognitive and emotional dysregulation in individuals with mental disorders (McEvoy, 2019). The metacognitive approach is the center of a person's approach to mastering their interactions with thoughts and managing the mechanisms that control these thoughts, as described by Wells (2009). In their meta-analysis, Normann et al. (2014) analyzed a total of 16 studies focusing on the effect of MCT on depression and anxiety disorders. The effectiveness of MCT in treating depression and anxiety disorders was found to be very high. Furthermore, large effect sizes between pre- and posttreatment were reported in 16 different studies, and based on the follow-up periods, the treatment results were maintained. Based on several studies, MCT showed significantly stronger treatment effects than CBT. In another study, Afshari et al. (2010) examined the effect of MCT on the panic beliefs of women with PD and found that the panic beliefs of participants receiving MCT decreased.

In the treatment of PD, therapies such as Dialectical Behavior therapy, Emotional regulation therapy, and Integrative Emotional regulation therapy, known as third-wave therapies, are also included (Vatan, 2016).

DISCUSSION

In this review study, CBT was examined in terms of its role in the treatment protocol for PD. A number of studies have investigated the effectiveness of CBT in the treatment of PD and have concluded that it is indeed effective (Gould et al, 1995; Butler et al, 2006; Bruinsma et al, 2016). For example, CBT for PD as a method of psychological therapy that is more productive for panic attacks than other psychotherapeutic techniques is now a known fact (Pompoli et al, 2016; Bandelow et al, 2018) in addition to the nontemporary (Bandelow et al, 2018; Pincus et al, 2010; Pompoli et al, 2016) nature of its outcomes. As reported by Bandelow et al. (2007) in the results of a meta-analysis, CBT maintains the gains of patients after therapy completion. According to Deacon and Abramowitz (2005), patients regard CBT as a more useful and practical form of therapy than long-term medication. These results support the conclusions regarding the benefits of CBT for patients relative to drug use. For treating PD, CBT helps patients by providing them with lifelong coping skills through intervening with automatic thoughts and core beliefs, thereby showing prolonged results. While the return of symptoms is observed in drug treatment, gains are also preserved in CBT treatment (Bandelow et al, 2018). In addition, research has shown that CBT can be made more effective using different techniques and combinations. In particular, methods such as face-to-face work, psychoeducation, psychosocial support, exposure to bodily sensations, and cognitive restructuring positively affect treatment outcomes (Pompoli et al, 2018). This demonstrates the potential benefits of combining different techniques in the CBT process. The use of different cognitive behavioral techniques together may help develop a deeper understanding of the therapy process and more permanent changes in the client. However, internet-based CBT applications have recently come to the fore as an important innovation. Studies have shown that internet-based CBT is as effective as face-to-face CBT (Domhardt et al, 2020; Rabasco et al, 2022). This can be considered a new opportunity for clients who have difficulty obtaining therapy in person. The integration of technology into therapeutic processes indicates that treatment options have recently expanded, and future studies should examine the long-term effects and effectiveness of digital therapies in more detail.

In addition, third-wave cognitive behavioral therapies such as ACT (Lopez, 2000; Karekla, 2004), ST (Hoffart, 2002), MCT (Afshari et al, 2010; Normann et al, 2014), and MBCT (Kim et al, 2013) have been shown to be effective in the treatment of PD. Based on this evaluation, the role of third-wave therapies for treating PD emerges as a field of study that needs to be addressed in more depth. In particular, there is a need for comparative studies on whether these therapies contribute to the long-term recovery processes of patients and studies in which their effectiveness is compared with that of CBT. These studies will provide important findings that will expand treatment options. However, it can be mentioned that studies on therapy methods other than ST, ACT, MCT, and MBCT are not sufficient in the literature on CBT of PD (Lopez & Salas, 2009; Hawke & Provencher, 2011; McEvoy, 2019). Therefore, it is thought that more studies on third-wave therapies in the treatment of PD will contribute to the literature.

The strengths of this review study include the fact that the current studies in the literature are included, the findings of meta-analyses and systematic review studies, and the effect of CBT on PD are discussed in detail, and the limited number of studies on the effect of third-generation cognitive behavioral therapies on PD are also included. Based on the findings of this review study, existing studies on the effectiveness and long-term effects of CBT for treating PD generally show that CBT is an effective treatment method.

CONCLUSION

This review discusses CBT, a therapy method with proven efficacy in the treatment of PD. It has been mentioned that CBT significantly reduces PD symptoms in individuals (Pincus et al, 2010; Hendriks et al, 2012), and there are findings that the gains of CBT in the treatment of PD are maintained for up to 24 months (Bandelow et al, 2018). Although studies have shown that third-wave CBT approaches are effective in treating PD, additional research is needed in this field.

The results of this study indicate that CBT is highly accepted in the treatment of PD and clearly demonstrate its widespread application and proven effectiveness. However, it can be mentioned that case studies in the existing literature and research on relapse rates after treatment can be increased, and in-depth investigations and more scientific studies are needed in this field. In particular, increasing the number of studies evaluating the clinical efficacy and long-term results of third-wave CBT approaches may allow these therapies to find a wider clinical application area; thus, more effective and permanent solutions can be offered in the treatment of PD. These studies may contribute to optimizing the approaches used in the treatment process and improve the treatment responses of individuals.

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