

# Cognitive Behavioral Therapy Implementations and Techniques in Panic Disorder: A Review

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## Abstract

In this review, Cognitive Behavioral Techniques (CBT) that are applied for people with panic disorder are examined. Panic Disorder (PD), in the category of anxiety disorders, is identified as extreme fear and uneasiness, repeated and unexpected panic attacks. When coexisting with agoraphobia associated with poor quality of life, it becomes a chronic feature, which can disable the person functionally. The study shows that childhood traumas, domestic violence, smoking, alcohol abuse, marriage problems, specific tragic events, tend to be anxious, and such like situations increase the risk of suffering from panic disorder. Applications of CBT-based technique specific to panic disorder aim to break the vicious cycle and restructure the patients' thoughts. The purpose of the review is to explain different concepts such as bibliotherapy, cognitive restructuring, Socratic questioning, relaxation techniques, systematic desensitization, exposure, psycho-education, coping strategies, homework and mindfulness techniques. The review also aims to evaluate the effectiveness of these concepts. Generally, CBT techniques can help patients regulate cognition by handling their emotions and behavior caused by thoughts. Thus, the study also examines internet-based CBT, family, and group therapy works used in the panic disorder CBT model. The literature shows that CBT is an effective therapy technique for panic disorder.

**Keywords:** Cognitive behavioral therapy, panic disorder

## Öz

### Panik Bozuklukta Bilişsel Davranışçı Terapi Uygulama ve Yöntemleri: Bir Gözden Geçirme Çalışması

Bu çalışmada, Bilişsel Davranışçı Terapi (BDT) süreçlerine dahil olan ve panik bozukluk teşhisi konulan kişilere uygulanan BDT teknikleri ele alınmıştır. Panik Bozukluk (PB) anksiyete bozuklukları kategorisinde olup; ani aşırı korku ve tedirginlik, tekrarlanan ve beklenmedik panik atak şeklinde tanımlanmaktadır. Düşük yaşam kalitesi ile ilişkili olan agorafobi ile birlikte seyrettiğinde, işlevsel anlamda kişiyi devre dışı bırakabilen, kronik bir özelliğe sahip olduğu belirtilmektedir. Çocukluk döneminde yaşanan travmatik yaşantılar, aile içi şiddete maruz kalma, alkol kötüye kullanımı, tütün kullanımı, evlilikle ilgili sorunlar, spesifik üzücü olaylar ve kaygılı olma eğilimi gibi etken durumların bireylerde PB ortaya çıkma riskini arttırdığı çalışmalarca ileri sürülmüştür. BDT tekniklerini temel alan uygulamalar, panik bozukluk özelinde, kısır döngüyü kırmak ve müdahalelerle hastaların düşüncelerini yeniden yapılandırmak üzerinedir. Bibliyoterapi, bilişsel yeniden yapılandırma, sokratik sorgulama, gevşeme egzersizleri, sistematik duyarsızlaştırma, maruz bırakma, psiko-egitim, baş etmeye dayalı stratejiler, ev ödevi ve mindfulness teknikleri mevcut çalışma kapsamında ele alınmıştır. BDT temelli bu tekniklerin genel amacı, düşünce sebepli oluşan duygu ve davranışı, bilişi yeniden ele alarak düzenlemektir. Bu nedenle, panik bozuklukta kullanılan BDT teknikleri ve panik bozukluk özelinde BDT'nin internet tabanlı kullanımı, aile ve grup terapisi çalışmaları incelenmiştir. Yapılan alan yazın çalışmaları BDT'nin panik bozuklukta etkili bir yöntem olduğunu ifade etmektedir.

**Anahtar Kelimeler:** Bilişsel davranışçı terapi, panik bozukluk

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## INTRODUCTION

In the handbook of *The Diagnostic and Statistical Manual of Mental Disorders' 5th edition (DSM-5)*, Panic Disorder (PD) is in the category of anxiety disorders. It is defined as excessive fear and uneasiness with repeated and unexpected panic attacks (American Psychiatric Association, 2013). There are four basic diagnostic criteria for PD, and it is stated that there is intense fear and uneasiness at the point where these four criteria reach the highest level. The first criteria is the presence of at least four physical and cognitive symptoms such as increased heartbeat, sweating, limited breathing, feeling of drowning, feeling hot, fear of death, depersonalization, anxiety to have a heart attack. The remaining criteria are the symptoms of anxiety related to the recurrence of panic attacks and maladapted behavior changes that continue at least for a month, and are not expressed better by any other psychological disorder (American Psychiatric Association, 2013). PD was previously considered as a symptom of Generalized Anxiety Disorder together with anticipatory anxiety and agoraphobia (Tükel, 2002; Kocabaşoğlu, 2002). However, because of its characteristics such as the presence of panic attacks, genetic predisposition, and the drive to avoid a new attack, it has been discussed in a different heading (American Psychiatric Association, 2013).

When it especially coexists with agoraphobia, that is associated with poor quality of life, it can become a chronic disease that functionally disables the person (Tortorolo & Levin, 2012). While the 12-month prevalence of PD is 2–3% across the United States and European countries (Belanger et al., 2017), a study conducted by Jonge and his colleagues also revealed that the lifetime prevalence of PD is 12.8% across the world (Jonge et al., 2016). It is reported that the age of onset of PD is generally between 15 and 24, which means it is more common at the end of puberty and the beginning of adulthood (Roy-Byrne, Craske & Stein, 2006). PD is rarely seen in clinical settings where there are no other psychopathological conditions. In other words, any other comorbid disorder generally accompanies PD. Some studies reveal that significant portion of patients with PD are also tends to have other anxiety disorders, bipolar disorder, some types of psychosis and substance use disorders (Craske et al., 2010).

There are many factors that make individuals prone to developing PD. Seganfredo and her friends (2009) suggested that traumatic experiences in childhood (any types of abuse, loss of loved one, permanent disease, separation,

violence, marital problems) play a role in PD formation in adulthood. Moreover, it is stated that in terms of congenital factors, the tendency to have more negative emotions and accept anxiety as harmful to them; and in terms of external factors, tobacco use and specific sad life events in adulthood may also trigger PD (APA, 2013). In terms of neurophysiological findings, it is claimed that serotonin deficiency (Gorman et al., 2000) and increased activation of the right amygdala (Pfleiderer et al., 2007) are considered as an underlying risk factor. Besides, although various genes are assumed to have some effects, the role of a specific gene or gene activity has not been studied (APA, 2013).

As in other psychiatric illnesses, it is important to implement individual-specific treatment modalities in PD treatment. Pharmacotherapy and psychotherapy are among the effective options used in the treatment of PD. Within this context, the current study mainly focuses on the definition, diagnostic criteria and risk factors of PD. It also includes how CBT can be used among people with PD by explaining the detail of CBT techniques. The main implementation of CBT is to restructure the patients' thoughts by interventions, which aims to break the vicious cycle. Moreover, the other critical part of the current study is to mention some studies and meta-analyses about the effectiveness of CBT on people with PD. All in all, the purpose of the current review is to present the detailed techniques of CBT on PD for the users.

### Cognitive Behavioral Therapy and Panic Disorder Model

CBT is a structured form of therapy based on the fact that thoughts shape emotions and behaviors. This approach, which deals with the three mentioned concepts (thought, emotion, and behavior) by emphasizing cognitive and learning theories, includes methods for problem-solving, coping, and reconstruction of cognition (Özcan & Çelik, 2017). It is a short treatment method, typically structured between 10–20 sessions that include clear objectives. Since it is a practical task-based method and requires an active role of both client and therapist, it can be applied both individually and with groups. In this way, it aims to correct catastrophic thoughts, conditioned fears, and avoidance. (Manfro et al., 2008).

Given the relationship of PD to CBT, the National Institute of Health and Clinical Excellence has identified CBT as an appropriate treatment for depression, obsessive compulsive disorder, anxiety disorders, and especially

PD (BABCP, 2012). In the treatment of panic attacks and PD, CBT is accepted as the most powerful method regarding the shortness of treatment and the continuity of the treatment's effect (APA, 2013). According to the CBT Model of PD suggested by Casey (2004), people with PD catastrophize changes in bodily sensations due to their past lives; as a result, they may experience intense anxiety about the future. Besides the increase in anxiety and fear of these people, physical sensations such as rapid heartbeat and chest pain can also be experienced. Consequently, such physical symptoms can create a vicious circle for people with PD (Fava & Morton, 2009). The CBT process aims to help people with PD by providing the opportunity to reconstruct their cognition and redefine their destructive thoughts. With the techniques used in the CBT process, people with PD can re-evaluate negative assumptions about the feared and anxious situations to create new cognitions (Otto & Pollack, 2009). Similarly, in Barlow's model (1988), the first panic attack experience is described as excessive anxiety and a 'false alarm' displayed as a response to general life stress. The stressful life events mentioned by people with PD are alarming news or losses, severe illnesses of the person or their loved ones and interpersonal problems. After the first attack caused by these life events, the person begins to develop some anxiety and physical fears. S/he may become more sensitive to the stimuli resulting from the assumption of the fact that the attack will be repeated again and again. This hypothesis causes the person to avoid the symptoms that cause fear, and they start to limit their daily activities. Manfro and her friends (2008) stated that CBT is used to correct such false cognitions or beliefs, to eliminate hypersensitivity and agoraphobia developing with symptoms.

### **Cognitive Behavioral Therapy Techniques Used in Panic Disorder**

The CBT process generally consists of three stages. In the first stage, the problematic situation for the client is handled through the session. The effects of the problem on the client and his/her environment, symptoms, cognitive and behavioral dimensions, and family functionality are discussed. At the same stage, the necessary information about the disorder is provided by the therapist to the client and his/her family who are prepared for the therapy process, which is called as psycho-education. After the necessary evaluations and the psycho-education process, the therapist who prepares the people for the next sessions passes to the second phase, which is more active process

that the treatment plan has created. Generally, the symptoms resulting from the problem can decrease significantly after the CBT techniques and interventions are applied in the second stage. At the last stage, there are interventions that enable people to maintain their well-being throughout life (Özcan & Çelik, 2017). The CBT interventions may change based on the time necessities or the client's situations (Bulut, 2010). Within the scope of this context, the current CBT techniques used in PD are summarized in the following section.

### **Bibliotherapy**

Bibliotherapy is defined as providing resources to the client in order to increase their missing motivation and change their wrong cognition and behavior (Öner, 2007). The concept of bibliotherapy is referred to as 'treatment by reading' in some sources (Bulut, 2010). The presented resource aims to develop the client's insight by providing necessary information about the disorder, and also form a process strategy as any other therapeutic interventions. In this way, it is expected that the person gains awareness about his patients and finds the courage to use the knowledge from readings in daily life (Campbell & Smith, 2003). In this context, one of the points to be considered is that the client should be appropriate position to comprehend this technique in terms of knowledge and skill (Öner & Yeşilyaprak, 2006). On the other hand, it is stated that bibliotherapy is a convenient therapy method because of its features such as ease of access, cheapness and actively involving the client in the therapy process (Apodaca et al., 2007). In the study conducted with the control group and the experimental group, it was concluded that after the bibliotherapy process, the group with PD significantly experienced diminishing severe panic symptoms (Wright et al., 2000).

### **Cognitive Restructuring**

The technique is defined as follows: Firstly questioning cognition that causes anxiety, then stopping the thought and emotions that result from the thought, and lastly arranging alternatives instead of negative thoughts by restructuring the internal speech that causes panic in the individual (Demiralp & Oflaz, 2007; Clark & Beck, 2010). Thanks to cognitive restructuring, which helps the person develop a more constructive perspective on the perceived threat (Clark & Beck, 2010), it is observed that individuals have the opportunity to re-evaluate their automatic thoughts, integrate new thoughts in their life

and experience a decrease in avoidance behavior (Freeman et al., 2004). For instance, it is observed that when the notion 'I should always be cold-blooded and I should not worry at all' is restructured as 'it is not possible to not worry in daily life, I may be worried for some situations', and the emotions also change in a positive manner (Savaşir et al., 2003). At that point, cognitive restructuring is used especially for attempting to distinguish the wrong interpretation of physical sensations in the context of panic attacks (Köroğlu, 2015).

### **Socratic Questioning**

Socratic questioning is defined as a structured discovery method that aims the client to notice his/her distorted thoughts, behavior, and perception. As a result of this discovery, it is aimed that the client will restructure his/her beliefs and re-interpret the ideas that actually do not work effectively with the new functional ideas (Wells, 1997). While the therapist is looking for problem-oriented evidence by asking questions in a Socratic style, s/he questions the advantages and disadvantages of the problem. In this way, the 'solution ways' of the problem are handled with this questioning (Beck, 2011). If the therapist expresses the person's cognitive distortions directly, the person may not be able to accept these realistic thoughts as they are, so the desired cognitive changes may not occur as anticipated. The actualization of this cognitive change is possible by discovering and evaluating the individual's own cognition. Thus, this method leads a person to discover his/her generalizations with the sequential questions, and then adopt the 'useful' thoughts (Stallard, 2005). Questions such as when the problem first started, when the last attack was experienced, what were the feelings, thoughts and physical symptoms during panic attack are among the questions aim to discover the underlying of the problem. The order of questions reveals the client's vicious circle table (TARRIER, 2006). Furthermore, questions such as what has been done in the face of the problem, what can be done differently to overcome the problem, how the changes can be achieved, and what advice can be given if someone else experiences a similar problem are aimed to be answered at practical discoveries (Savaşir et al., 2003).

### **Relaxation Exercises**

Wrong breathing patterns can cause physiological symptoms such as dizziness, choking, and tachycardia due to increased oxygenation in the blood. Also, muscle tension may play a role in increasing anxiety and feeling physical

pain. It is seen that the symptoms mentioned above are also the symptoms experienced during panic attacks. In such cases, relaxation exercises can be used to reduce increased anxiety and stress (Manfro et al., 2008). The relaxation exercises techniques involve the relaxation of the tense muscles with certain exercises and the change in the mental state thanks to rhythmic breathing (Stuart, 2012). Before starting to apply, the therapist should share with the clients how to perform this type of exercise, including diaphragm breathing and progressive muscle relaxation. In a study conducted by Çenesiz (2015), the effectiveness of relaxation exercises was examined. It was stated that a client in the study experienced panic attack symptoms when he got on the plane and the elevator. After practicing the relaxation exercises for a while, it was observed that the client was able to cope with the situation in his next boarding experience. It was also stated that the panic symptoms disappeared through his elevator experience.

### **Systematic Desensitization**

Systematic desensitization aims for the client to exhibit less avoidance behavior by redefining the conditioned link between the stimulus that the individual is afraid of or worried about. This method is applied gradually, and it is expected that the negative effect of the stimulus loses its influence on the person over time (Türkçapar & Sargin, 2012). In this technique, which is based on Pavlov's conditioning theory, the relaxation skills are given to the person at first. In the next stage, the anxiety situations are ordered from the most to the least. The situation where the person feels the least anxiety is conditioned by the ability to relax. Then, the progresses towards the most intense anxiety state are practiced systematically (Özdel, 2015). In the last case, it can be seen that the previous panic response gradually disappeared with the new behavior (Sharma et al., 2013).

### **Exposure**

One of the techniques used to treat people with PD is the exposure that helps people face their fears and concerns. In CBT interventions, there are different models such as 'in vivo', 'interoceptive', and 'imaginal exposure'. While 'in vivo' exposure method refers to confronting people with feared stimuli directly/on-site, 'interoceptive' method of exposure refers to exposing people to real physical senses. However, imaginal exposure involves getting people to imagine the worrying situation and discover that their bodily sensations are not dangerous and

disastrous as they imagine (Üzümcü et al., 2018). Thus, instead of escaping their fears, they can experience facing their fears and are able to take action to restructure the cognition that causes their fears. In a study conducted by Perez-Ara and colleagues (2010), it was observed that these two exposure groups in which real physical stimuli and virtual environment stimuli were compared showed a significant improvement in terms of decreasing panic symptoms with the exposure exercises. In a pilot study conducted by Hall and Lundh (2019), 3-week exposure therapy was applied to clients. After the application under the therapist's guidance, the avoidance behavior and negative body sensations of the clients decreased. As a result of the research, this method was evaluated to be an effective treatment technique for PD. In another study, researchers studied situations of which clients with PD were afraid of for one month. Firstly, the hierarchy of fearful situations was formed. In subsequent processes, introspective exposure exercises related to the feared situations were applied. As a result of the study, researchers noted that panic and anxiety symptoms significantly decreased (Deacon and Abramowitz, 2006).

### Psychoeducation

Psychoeducation focuses on identifying and verifying the sources of panic symptoms, the role of thoughts that sustain fear and anxiety, and avoidance behaviors caused by these thoughts. It is considered as one of the treatment methods based on the clients and their family's participation, and it also continues from the beginning to the end of the therapy process (Manfro et al., 2008). In psychoeducation practices, the aim is to teach individuals to become their own therapist over time and motivate them to continue with therapy. Thanks to the feature of psychoeducation, relapses for PD are considerably prevented. During the therapy, people learn to recognize and identify their automatic thoughts and discover their own cognitive processes. In the later stages of the psychoeducation process, studies are carried out on how to change incorrect thought patterns, and it is aimed to create awareness against previously used but non-functional coping mechanisms. As a result, the first purpose is to reconstruct thoughts; then, changing the behavior patterns caused by thoughts. Within the scope of psychoeducation practices in PD, the vicious cycle of panic attacks and PD's nature are explained to the clients. The interventions that emphasize cognition focus on breaking the vicious circle of panic attacks (Köroğlu, 2011). In a meta-analysis study

conducted by Donker and colleagues (2009), even passive psycho-educational interventions were found to have a significant effect on decreasing depression and anxiety levels.

### Coping Strategies

Cognitive, behavioral, and emotional exercises aiming to cope with the feeling of tension caused by anxious and stressful events (or any situation that leads to anxiety) are discussed in this topic. The purposes of the methods that consist of testing alternatives, the worst scenario, breathing, relaxation, and distraction are to cope with the condition that causes the discomfort. While testing alternatives aim to evaluate the existing resources that support the person and produce new resources, the worst-case method discusses 'what could be the worst situation, the best situation and possible results' (Stuart, 2012). In this form of intervention, which is considered as preventing catastrophic reaction, the purpose is to balance between the catastrophic thoughts in the person's mind and the fact. (Akkoyunlu & Türkçapar, 2013). On the other hand, the distraction technique is used to stop negative thoughts and help the person struggle with anxiety. Several methods can be applied by focusing on an object, describing the object in detail while focusing on 5 sensory organs, counting 5 or 7 numbers as a mental exercise, imagining a good moment or a beautiful place, and focusing on breathing. These methods are especially used in anxiety disorders including PD with high anxiety levels. The main purpose is to enable the person to manage panic symptoms and emotions using these techniques, rather than shifting his focus to completely different points and leading to permanent avoidance. It will be easier for the person with PD to cope with the current problem or symptom, after decreasing emotional intensity with techniques (Simmons & Griffiths, 2018). In the study carried out by Wesner and colleagues (2019), the group in which the CBT standard form was applied was compared with the group in which in addition to the standard form, coping strategies were applied. According to the findings, compared with the first group, the second group that applied coping strategies experienced an increase in resistance levels and improvement in panic symptoms.

### Homework

One of the most critical applications of CBT is homework, mostly used by therapists (Freeman, 2007). Homework is defined as home activities determined by the client and the

therapist during the therapy period. The purpose of homework is to use the skills learned during the sessions in daily life, contribute to the client in terms of self-training, get information about the client at the outside of the session, and to assist the therapy process (Beck, 2011). There are some important points in the effectiveness of homework. The attitude of the client towards the homework (Fehm and Mrose, 2008), the suitability of the homework to the client (Lebeau et al., 2013), and the control of completed works by the client and the therapist together (Bryant et al., 1999) are among the factors that may affect the usefulness of the homework. Besides, choosing the right homework at the right time is among the points to take into consideration (Soylu & Topaloğlu, 2015). Cognitive restructuring, interoceptive exposure, 'in vivo' exposure, respiration control, and respiration training are the CBT-based homework assignments frequently used in PD. In a case study conducted by Ateş and Arcan (2018), it was concluded that exposure based homework was planned for the client who had symptoms of PPD. As a result of the activities, it was concluded that the client replaced her automatic thoughts with more realistic thoughts, and her anxiety level decreased.

### **Mindfulness**

Mindfulness is defined as the improvement of attention and awareness through some form of meditation. It is considered as an application based on Buddhism meditations, expressed as 'awareness of using attention to focus on the goal', 'staying now' and 'not judging and accepting past experiences' (Kabat-Zinn, 2003). It is emphasized that these meditation-based practices include developable psychological processes (Bishop et al., 2004). Mindfulness has similarities with CBT on issues such as awareness and emotion regulation, and has recently been included in CBT practices (Cash & Whittingham, 2010). Mindfulness exercises can be seen as focusing on the breath, the body, a voice, or an activity. The purpose is to provide a focus on 'now' and acceptance. The therapist can lead the client on how to apply the exercises by sharing the instructions and to try them during the session. It is important to have a few practices during the session and to get feedback from the client so that s/he can continue to practice in daily life after the therapy (Simmons and Griffiths, 2018). In a study examining the effectiveness of mindfulness practices on people diagnosed with panic and generalized anxiety disorder, it was noted that there was a significant decrease in anxiety and depressive symptoms of individuals (Kim et al., 2009).

### **CBT in Panic Disorder and Its Application Areas**

**Internet and Computer Based Versions:** The new version of the CBT has been developed with the spread of internet use (Andersson, 2009). With this development, portable computers enabled CBT to be used online (Kenardy et al., 2003). Face-to-face application of CBT has been proven beneficial for PD. However, in face-to-face versions, it is also known that there are several application barriers such as fear of stigma, the therapist's demand for high cost, and the distance and difficulty of transportation between the therapist and the client (Klein et al., 2009). In response, it is emphasized that the internet or computer-based versions of CBT help to eliminate these barriers (Klein et al., 2009; Kiropoulos et al., 2008). Computerized CBT is basically defined as the customization of CBT stages for electronic use (Proudfoot, 2004). There are also studies showing that this new version of the CBT is effective for PD. In a study conducted by Richards and Alvarenga (2002), the CBT program consisting of 5 internet-guided modules was used for individuals diagnosed with PD. The program provides information about panic disorder in the first module, and the causes and effects of panic in the second module. It also gives information about the cognitive, physiological, and behavioral components of panic in the third module, and how they affect each other, including negative automatic thoughts and negative self-schemas in the fourth module. In the last module, by using the information based on all other modules, the person tries to identify behaviors that are helpful or not for himself. After the program was completed, the findings were evaluated. According to the results obtained, it was found that this version of the CBT was effective in reducing the intensity of PD symptoms, the number of panic attacks experienced, and the level of anxiety. In addition, after the interventions, it was observed that these individuals were less likely to see the physical senses caused by PD as threatening. There are also studies in the relevant literature comparing the effectiveness of internet-based CBT with traditional face-to-face CBT. Kiropoulos and colleagues (2008), in their study, randomly assigned people with PD to face-to-face CBT or online CBT groups. According to the results, both types of CBT intervention have been shown to reduce PD symptoms effectively. In another literature, Bergström and colleagues (2010) concluded that internet-based CBT application for the treatment of individuals with PD is as effective as the face-to-face intervention of CBT. Even six months after the intervention, individuals experience lower levels of panic symptoms at work, in family, and in a social context. Moreover, other study conducted by Bruinsma and his friends (2016), they

aimed to explore validity of CBT combined with digital technology. According to the results, the version of CBT significantly helps patients reduce their symptoms. The meta-analysis, which examined 16 studies, revealed that internet-based intervention is more effective in reducing panic disorder symptoms than the other conditions (Domhardt et al., 2020).

**Group Studies:** CBT is an approach in which the therapist takes an active role. It is applied within a limited time. Considering the high number of clients and the low number of practitioners, it is observed that the interest in group therapies has increased over time (Bieling et al., 2006). In a review study investigating CBT's effectiveness in the treatment of PD, it was stated that the duration of sessions varied between 60–150 minutes, and the number of sessions varied between 5–14 in CBT-focused group therapies. It was also concluded that therapists frequently use exposure, cognitive restructuring, psycho-education and relaxation exercises in groups ranging from 3 to 12 people. (Başaran & Sütçü, 2016). Moreover, it has been concluded that panic-related symptoms are significantly reduced in group treatments involving CBT and CBT is effective for PD in terms of group therapies (Schwartz et al., 2017). In an experimental research involving group studies and CBT applications in PD, there was a significant change in the clients' coping mechanisms. During the therapy process, psycho-education and cognitive restructuring were frequently used and the methods such as exposure, modifying of negative automatic thoughts, and relaxation exercises were applied to 48 clients. According to the results, there was a significant improvement in PD symptoms, while maladaptive coping mechanisms such as avoidance decreased (Wesner et al., 2014). There are some studies supporting the use of CBT on an individual basis, which yields better results than the group form, or studies demonstrate that patients generally choose individual therapy instead of group therapy (Sharp, Power & Swanson, 2004). Nevertheless, there are some other studies that prove the efficacy of cognitive behavioral group therapies (Choi and et al., 2005) and studies asserting that group therapies are more effective than individual therapies in increasing the level of functionality of individuals (Roberge et al., 2008). However, a review by Başaran and Sütçü (2016) revealed that group therapies and individual therapies are equally effective in reducing PD symptoms.

**Family Therapy:** In the therapy period, the client's family and relatives can sometimes be a part of the process, as

well. Although the problem is individual specific to PD, the contribution of the family to the process is very crucial. Furthermore, in many other psychological disorders, the problem not only affects the person, but the person's own problem may also affect whole family who share a common life with the patient. For this reason, the patient's family members are included in the therapy process by the therapists who work as family therapists (Sungur, 2003). At that point, family therapy applications can be synthesized with CBT applications. During the therapy process, there are sessions that include both all family members and members one by one. The purpose is mainly to inform the family about the person's illness and organize their behaviors towards the patient in order to help the person through the process (Özabacı & Erkan, 2014). In addition to psycho-education and behavioral changes, family members' contributions during the attack are also crucial in breaking the vicious circle of panic attacks. For example, reminding that this is an attack, it has lived and survived before, it can be overcome again, it will not hurt, and breathing helps to calm will be a facilitator for the patients in terms of coping with the moment of attack. Giving similar realistic instructions can be counted among family members' contributions in breaking the vicious circle (Iskifoğlu, 2016). In some studies that apply cognitive techniques on PD patients and their families, it was stated that the rates of time without the attack through 5 years exceed 80% due to these cognitive interventions performed with families (Fentz et al., 2013). This shows that the support of the family has a significant contribution to the treatment of panic attacks.

## DISCUSSION AND CONCLUSION

In this review, which aims to enlighten CBT applications in panic disorder treatment, it is clearly understood that cognitive behavioral therapy methods have an important place in panic disorder treatment. When the relevant literature is examined, the studies mentioned so far have indicated that CBT is substantially effective in treating individuals diagnosed with panic disorder. Also, in several meta-analyses, effect sizes regarding CBT's efficiency for PD were found large (Butler et al., 2006; Stewart & Chambless, 2009).

The recent research mainly discussed and focused on different techniques of CBT and different forms of its applications. Considering the techniques used for PD in CBT, it was found that the integration of the interceptive

exposure method and cognitive restructuring had the highest impact dimensions. Within the scope of case examples, the effect of relaxation exercises on dealing with panic symptoms is clearly seen (Çenesiz, 2015). In studies on the computer or internet-based CBT applications, which have become widespread, these applications are found to be effective for PD (Richards & Alvarenga, 2002; Kiropoulos et al., 2008). However, it has been concluded that people with PD who face CBT prefer face-to-face therapy for several reasons such as greater compliance with therapy requirements and better understanding CBT elements compared to the online environment, and interacting one-on-one with the therapist (Kiropoulos et al., 2008). In order to prevent the disadvantaged sides of the computer-based CBT, it is thought that the causes of non-compliance to treatment can be investigated, and more attention can be given to CBT-related trainings that can contribute to compliance and effectiveness. After all, it is known that CBT techniques provide significant improvements in panic attack symptoms in people who have PD in their group and family studies, which are shaped according to the needs of individuals and frequently take place in practice over time (Choi et al., 2005; Iskifoğlu, 2016). In conclusion, in our world, which is rapidly differentiating with the effect of technological developments, it is thought that it is important for cognitive behavioral practices that require one-to-one contact with people to keep up to date. CBT, which practitioners frequently prefer, is believed to have more efficient efficacy literature findings with different technical and practical research findings.

As a result, it is stated that cognitive behavioral therapy techniques in individual therapy methods, family therapy, or group practices are an effective intervention method for people with panic disorder. The meta-analysis conducted by Mitte (2005) concluded that CBT is as effective as pharmacotherapy. Therefore, the study conducted by Seddon and Nutt (2007) supports this claim by revealing that patients did not experience PD symptoms for two years after CBT. Also, it has been noted that pharmacotherapy is more costly than CBT due to its recurrence and withdrawal time (Apeldoorn et al., 2013). However, it is also important that cognitive behavioral practices that require one-to-one contact with people should follow the modern-day requirements and stay up-to-date in our world, which is rapidly differentiated by the effect of technological developments. In this context, future researches can study that personalized CBT applications, especially

various computer and internet-based CBT techniques, should improve with the demand for online applications. In this way, the literature based on panic disorder may have more efficient efficacy findings and more up-to-date method contents.

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