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MENTAL HEALTH IN THE AFTERMATH OF DISASTERS; PSYCHOLOGICAL EFFECTS, TREATMENT APPROACHES AND COPING

AFETLER SONRASINDA RUH SAĞLIĞI; PSİKOLOJİK ETKİLER, TEDAVİ YAKLAŞIMLARI VE BAŞ ETME

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ABSTRACT

The February 6, 2023, Kahramanmaraş earthquakes were reported as one of the biggest disasters in our country. The magnitude of the natural events, the large-scale impact, and its man-made aspect made this disaster a mass trauma that affected almost the entire country. Survivors can experience many different psychological symptoms after disasters, and although Post-Traumatic Stress Disorder (PTSD) is the most frequently reported one, all psychiatric disorders, such as depression and anxiety, can be seen. In addition to the individuals who experienced the earthquake, mental problems can be observed in rescue and health workers who go to the region to help. Different methods such as psychological first aid (PFA), psychotherapies, and drugs can be applied from very early to the following months after the disaster. Post-traumatic growth (PTG) can also develop as one of the mechanisms for coping with great suffering in individuals and communities after major traumas. This article will present the psychological effects that develop after major disasters, especially earthquakes, the treatment approaches, and discuss PTG.

Keywords: Disaster, earthquake, mental health, post traumatic stress disorder, psychological first aid

ÖZET

Altı Şubat Kahramanmaraş depremleri ülkemizdeki en büyük afetlerden biri olmuştur. Depremlerin şiddeti, geniş alana yayılması ve insan kaynaklı boyutunun da olması bu afeti neredeyse tüm ülkeyi etkisi altına alan kitlesel bir travma haline getirmiştir. Afetlerden etkilenen bireyler olaydan sonra birçok farklı psikolojik belirti yaşayabilmekte ve en sık bildirilen tanı Travma Sonrası Stres Bozukluğu (TSSB) olmasına rağmen, depresyon ve anksiyete gibi birçok psikiyatrik bozukluk görülebilmektedir. Afeti yaşayan bireylerin yanı sıra bölgeye yardım için giden kurtarma ve sağlık çalışanlarında da ruhsal sorunlar gözlemlenebilir. Psikolojik ilk yardım (PİY), psikoterapiler, ilaçlar gibi farklı yöntemler afetin çok erken döneminden itibaren sonraki aylara kadar uygulanabilir. Travma sonrası büyüme (TSB), büyük travmalardan sonra bireylerde ve topluluklarda büyük acılarla başa çıkma mekanizmalarından biri olarak gelişebilir. Bu makalede, başta deprem olmak üzere büyük afetler sonrasında gelişen psikolojik etkiler ile tedavi yaklaşımları sunulacak ve TSB anlatılacaktır.

Anahtar Kelimeler: Afet, deprem, ruh sağlığı, travma sonrası stres bozukluğu, psikolojik ilk yardım

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GENİŞ ÖZET

Altı Şubat 2023 tarihinde birkaç saat arayla meydana gelen 7.7 ve 7.6 şiddetinde merkezi Kahramanmaraş olan depremler, 11 şehri doğrudan etkileyerek ve en son açıklanan resmi sayıya göre 50 binden fazla insanın ölümü nedeniyle ülkemiz tarihinin en büyük afetlerden biri olmuştur. Depremlerin şiddeti, geniş alana yayılması, büyük sayıdaki ölüm ve yaralanmalar, ortaya çıkan güvenlik sorunları, insanların başta evlerini ve işlerini olmak üzere sahip oldukları çoğu şeyi kaybetmeleri nedeniyle zorunlu göçe yol açması ve insan kaynaklı boyutunun da olması bu afeti neredeyse tüm ülkeyi etkisi altına alan kitlesel bir travma haline getirmiştir.

Afetlerden etkilenen bireylerde birçok farklı psikolojik belirti gelişebilir. Olaydan sonraki erken dönemde görülebilen birçok belirti anormal bir olaya verilen normal tepkiler kapsamında değerlendirilir ve ilk zamanlarda birçok belirti yoğun düzeyde yaşanabilirken süreç içerisinde bunların çoğunun azalarak sonlandığı görülür. Ancak araştırmalar, afetler sonrası toplumda %10-30 arasında tanı konulacak düzeyde psikiyatrik bozukluğun geliştiğini bildirmektedir. En sık bildirilen ve üzerinde en çok çalışmanın yapıldığı bozukluk Travma Sonrası Stres Bozukluğu (TSSB) olmasına rağmen, depresyon ve anksiyete gibi birçok psikiyatrik bozukluk görülebileceği de unutulmamalıdır. TSSB'nin dört belirti kümesi vardır; yeniden yaşantılama, uyarılmışlık hali, kaçınma ve bilişsel- duygusal sorunlar. TSSB olaydan haftalar ya da aylar sonra da gelişebilir.

Afeti yaşayan bireylerin yanı sıra bölgeye yardım için giden arama- kurtarma ekipleri, sağlık çalışanları, sosyal hizmet uzmanları ve gönüllülerde de ruhsal sorunlar gözlemlenebilir. Bunlardan ilki travmatik yaşantıları deneyimleyen kişilerden ya da çeşitli kaynaklardan duyma ve öğrenme gibi dolaylı yoldan etkilenme olarak tanımlan ve belirtileri TSSB ile örtüşen ikincil travmatik strestir. İkincil travmatik stresin beklenen bir sonucu olan, yoğun ruhsal ve fiziksel yorgunluğun giderek yol açtığı empati kurma becerisinde bozulma, merhamet yorgunluğu olarak tanımlanır. Merhamet yorgunuğu yaşayanlarda birçok bedensel, zihinsel, duygusal ve davranışsal sorun görülebilir ancak en önemli özelliklerinden biri, tükenmişlik hissidir. Maslach, duygusal tükenmişlik hissi, ilgilendiği işe ve bireylere yönelik duyarsızlaşma ve kişisel başarı duygusunun azalması ile ortaya çıkan psikolojik tabloyu tükenmişlik sendromu olarak tanımlamıştır. Belirtiler, başlangıçta algılanamayabilir ancak zaman içinde giderek şiddetlenir.

Afetlerden sonra bireylerin ruhsal gereksinimlerine yönelik hem erken dönemde hem de ilerleyen zamanlarda uygulanabilecek çeşitli girişimler vardır. Bunlardan ilki, olaydan dakikalar sonrasında dahi başlanabilecek ve ruh sağlığı alanında uzmanlık eğitimi gerektirmeden de uygulanabilecek bazı basit prensipler üzerine kurulu olan Psikolojik İlk Yardımdır (PİY). PİY prensiplerine makalenin içinde geniş kapsamda değinilmiştir. Erken dönem sonrası, ruhsal belirtilerin devam ettiği ya da şiddetlendiği olgularda Travmaya Duyarlı Farkındalık, Göz Hareketleri ile Duyarsızlaştırma ve Yeniden işleme, Bilişsel Davranışçı Terapi gibi psikoterapi yöntemleri uygulanabilir. Makalede TSSB başta olmak üzere afetle ilişkili ruhsal sorunlarda başvurulabilecek psikoterapötik uygulamalara detaylı yer verilmiştir. Her ne kadar ilk tedavi yaklaşımı olmasa da, belirtilerin ilk bir aydan sonra da bireyin yaşamının birçok alanındaki işlevselliğini bozacak düzeyde sürdüğü, major depresif bozukluk ya da alkol- madde kullanım bozukluğu gibi komorbiditelerin geliştiği bireylerde psikofarmakolojik tedavilerin de başlanması gerekebilir. TSSB tedavisinde etkinliği büyük oranda kabul edilen ajanlar Sertralin, Paroksetin, Fluoksetin ve Venlafaksindir. Ek olarak farklı nörotransmisyon mekanizmaları üzerinden etkinliği gösterilen ancak halen yüksek kanıt düzeyine ulaşmayan çeşitli ajanlar da olgu bazında değerlendirme yapılarak kullanılmaktadır. Makalede çeşitli psikofarmakolojik ajanların kullanım ilkelerine değinilmiştir.

Son 25 yılda yapılan araştırmalar, afetlerden ve travmatik olaylardan kurtulan bireylerin çoğunun bu zor deneyimlerden olumlu değişikliklerle çıktığını belirten travma sonrası büyüme (TSB) kavramını ortaya çıkarmıştır. Olumlu değişimler arasında sosyal ilişkilerin olumlu yönde gelişmesi, yaşamı daha fazla takdir etme, yaşam için şükran duyma ve daha derin manevi anlamadan söz edilebilir. Afetler, bireylerin dünyanın iyi bir yer olduğu ve iyi insanların başına iyi şeylerin geleceğine dair inançlarını sorgulamasına neden olan olaylardır. Aniden gelerek büyük bir yıkıma yol açan olaylar, hayatın kontrol edilebilirliği, öngörülebilirliği ve dünyanın güvenirliğini sarsarak bireylerin kendilerini savunmasız hissetmelerine yol açar. Ancak hayatta kalan kişiler için, hiç beklemedikleri bu felaket sonrasında, önceden alışık oldukları yaşam koşulları olmadan da hayata devam ettiklerinin farkına varmak öz yeterliklerini ve kişisel güçlerini arttırabilir. Manevi bağlarının güçlenmesi, yeni yaşam amaçlarının yaratılması, ailelerin ve toplulukların bir araya gelmesi, sosyal değerlerin gelişmesi, başkalarıyla bağlantı kurma gibi yeni kazanımlar elde edebilirler. Umut her zaman vardır...

INTRODUCTION

The earthquakes with a magnitude of 7.7 and 7.6 Richter in Kahramanmaraş, dated February 6, 2023, directly affected 11 cities and was recorded as one of the most significant traumatic events in the history of our country. The number of people who lost their lives was announced as 50,096 and the number of injured people as 107,204 (1). Natural disasters are events that occur suddenly and have large-scale effects resulting from the earth's natural geological or climatic processes. In addition to experiencing the moment of disaster, being in the wreckage, experiences during the rescue, death, injuries, disabilities, witnessed destruction, delay or inadequacy of assistance, security weakness, interruption or complete disappearance of social networks, especially regarding basic needs and health needs. Natural disasters due to resource depletion, loss of housing, and workplace traumatize individuals and groups (2).

Among natural disasters, earthquakes are described as the disasters that threaten life the most and cause the most forced migration due to their uncontrollability, destructiveness, the uncertainty of the future, and the feeling of insecurity (3). In addition to the "natural" nature of disasters, there is also a "man-made" dimension. Among the reasons are the facts that the houses were built unstably against the scientifically expected earthquakes, unpreparedness, organizational problems experienced during the response and aid process, the negative attitudes of the administrators in the process following the disaster, the number of experts working on disasters and their inadequate knowledge and skills. It is known that human-made traumas cause various psychological reactions that deeply shake the individual's sense of trust and justice (4). Due to their terrifying and devastating dimensions, the February 6 Kahramanmaraş earthquakes constitute a massive trauma with a huge psychological impact (4).

In this article, although the recent earthquake disaster that our country has experienced is at the focus, the mental problems that individuals may experience after natural disasters and the solution approaches in terms of psychological-psychiatric aspects will be discussed. We expect our article to guide readers to understand the mental states that can be observed after disasters and take appropriate approaches.

Psychological reactions to trauma

Trauma is defined as an event that involves "actual or threatened death, serious injury or an equivalent threat, or extreme helplessness, fear, and terror." It includes vicarious experiences in the definition of traumatic events. Not only the person who directly experienced the event but also the people who witnessed the event, loved ones who experienced the disaster, and those who were in the environment immediately after the event due to their duties are affected by the events (5).

The February 6, 2023, Kahramanmaraş earthquakes are a trauma that affects almost the whole country, considering those who lived through the disaster at that time, had a relative in the region, went to the area to help, and witnessed all these events (4). Natural disasters may threaten individuals' and communities' psychosocial well-being in many ways and result in many short and long term consequences (2). In the early post-disaster period, psychological symptoms should often be considered a normal reaction to an abnormal event (6). Individuals may feel very intense negative emotions such as depression and anxiety, may experience physical symptoms such as palpitations, breathing difficulties, sleep disturbances, may experience as if they are reliving the event, startling easily, alertness, dullness, and an inability to focus. Although these psychological symptoms are common at first, they are expected to decrease spontaneously in most people over time (4).

Psychiatric symptoms and diseases that occur after disasters vary according to age, gender, marital status, loss of life and property after the disaster, old health problems, and the economic conditions of the country (7,8). In population-based studies, the rate of those developing any psychiatric disorder in disasters is between 10-30%. Post-Traumatic Stress Disorder (PTSD), on the other hand, is the most frequently observed mental disorder, together with natural disasters (9,10). In a study conducted 4-12 months after the 1999 Marmara Earthquake, the incidence of PTSD was found to be 25% (11).

According to The Diagnostic and Statistical Manual of Mental Disorders-5, PTSD includes four clusters of symptoms: re-experiencing, i.e., recurrent memories, nightmares, dissociative reactions; alterations in arousal such as aggressive, reckless or self-destructive behavior, sleep problems, hypervigilance; avoidance from distressing memories, thoughts, or reminders of the event; cognitive and mood alternations, i.e., persistent negative beliefs, distorted blame, or trauma-related emotions; feelings of alienation and diminished interest in life (1). PTSD can occur weeks or months after the traumatic event and last for years. Studies show that high education level, loss or serious injury of a close person in the event, forced displacement, a history of trauma experience before the traumatic event, and mental disorders are factors that increase the risk of PTSD (12). In addition, the extent of the person's perception of control over the onset, duration, and end of the traumatic event has an important place in the emergence of PTSD symptoms. Foa et al. reported higher PTSD symptoms in the earthquake experience with less sense of control (13).

Although most studies focused on PTSD, it should be kept in mind that the rates of other psychiatric diseas-

es, such as generalized anxiety disorder (GAD) and major depressive disorder (MDD), increase in individuals after disasters. It should be kept in mind that almost all diseases and symptoms known in psychiatry can be encountered (8,14). When a mental disorder develops after traumatic events, it is expected that the symptoms tend to decrease over time. If, after a few months, there are still symptoms that meet the criteria for the diagnosis of a mental disorder, it is unlikely that the symptoms will lessen spontaneously, and treatment should be started (4). Early diagnosis and intervention in psychiatric diseases will also change the course of the disease (7).

What helpers may experience

Many occupational groups as healthcare professionals, social workers, disaster relief and recovery workers, etc., are at increased risk of exposure to traumatic events in the areas of disasters. After the earthquakes, the treatment of the injured started primarily in the health institutions in the affected regions, and most of the cases were transferred to the surrounding provinces to ensure continuity of treatment. Many physicians from our country applied to participate in working activities voluntarily, and they were assigned to the necessary health institutions in the earthquake region. The management of our institution, the Istanbul University Istanbul Faculty of Medicine, created a coordination network shortly after the earthquake and sent its employees, who had received UMKE (National Medical Rescue Team) training, and then volunteers to various cities in the region at regular intervals.

In times of major disasters, the healthcare workload increases while the number of operational healthcare personnel decreases. Beyond the physical fatigue of rescue and health workers, the compelling conditions of the patients and their relatives can also affect them within the scope of secondary traumatization. When someone is indirectly exposed to a traumatic event by getting informed or hearing about it, secondary traumatic stress (STS) develops (15,16). In other words, secondary trauma occurs when an individual is indirectly exposed to trauma. Since healthcare professionals frequently contact traumatized people, STS is ubiquitous among them. STS symptoms can include reliving the trauma, avoiding reminders of the experience, and having higher arousal (17). These symptoms are similar to those of PTSD.

Understanding other people's suffering and being willing to work with them to find a solution are two characteristics of compassion (18). As a consequence of STS, psychological and physical exhaustion may decrease one's capacity for empathy, which is called compassion fatigue (CF). Signs and symptoms of CF are grouped into emotional, psychological, and physical aspects such as detachment, despair, or apathy; excessive consideration and worrying about other people's suffering; blaming oneself or others for not doing enough to help or prevent the trauma; irritability or anger; problems falling asleep, changes in appetite, stomach ache, nausea, and dizziness (19).

Burnout is a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job. Maslach describes burnout as a psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment, which can occur among individuals who work with others in some capacity (20). Emotional exhaustion refers to feeling emotionally overextended and depleted of one's emotional resources. Depersonalization refers to a negative, callous, or excessively detached response to other people who usually receive one's service or care. Reduced personal accomplishment refers to a decline in one's feelings of competence and achievement in one's work (20). Burnout happens in employees who experience significant levels of occupational frustration, and it is more common in occupations requiring long working hours and frequent human interactions (21).

Burnout and compassion fatigue have certain similarities, but they also differ significantly. Burnout is a term used to describe a condition of exhaustion that results in low motivation and little enthusiasm for one's job. Contrarily, compassion fatigue is a specific kind of burnout that describes the unfavorable feelings and loss of empathy people experience after being exposed to the trauma, pain, and suffering of others. Compassion fatigue is most common in professionals who deal with people daily, such as physicians, nurses, psychotherapists, social workers, and teachers. Although the symptoms of burnout and compassion fatigue are similar, their underlying causes differ. In contrast to burnout, which is brought on by the workplace and is more closely related to the institutions than the patients, compassion fatigue develops due to the caring nature of helping professionals (22).

Psychological interventions in disasters

In the first moments of disasters, individuals mainly focus on sheltering, nutrition, and the basic medical care needs of people who are affected. Situations that may pose a risk in terms of mental health, such as losses, adaptation to the new environment, and stress, usually remain in second place (23). The psychological needs of people affected by disasters may become more evident over time, so psychosocial intervention methods are used to protect individuals' mental health and prevent the emergence of psychopathological conditions (23). The main goals of psychosocial interventions are to instill a sense of security, calm, reinforce the sense of self-efficacy and social competence, nurture the sense of connectedness, and increase hope (24).

Studies emphasize that structured psychotherapies are not suitable immediately after disasters and suggest im-

plementing particular psychosocial interventions in the first week, the first month, 1-3 months, and three months after the disaster (25).

Commonly used post-disaster interventions are:

- Psychological first aid (PFA)
- Trauma-sensitive mindfulness
- Eye movement desensitization and reprocessing (EMDR)
- Trauma-focused cognitive behavioral therapy (CBT)

In the first week after the disaster, interventions for PFA, psychoeducation for coping with the effects of disasters, and social support are preferred. It may be more appropriate to perform EMDR in the first month and after the disaster and structured psychotherapies such as CBT within the first three months after the disaster for people with PTSD (26).

Psychological first aid

Psychological first aid, the basic approach recommended recently after disasters, effectively prevents long-term problems at the center of the event (23). As an evidence-based approach, PFA is a supportive, practical, and humane intervention offered to individuals suffering, experiencing intense stress, and needing support (27). PFA aims to establish a non-coercive relationship with individuals affected by disasters, to reduce the stress caused by disasters with a compassionate approach, and to improve individuals' coping and adaptation skills in the short and long term (27). PFA is not a psychiatric treatment method, and it can be applied not only in the clinical setting but also in settings such as the epicenter, camps, homes, schools, and workplaces by people who have PFA training (23, 28). There is no strict time limit for PFA intervention since the effects of the disaster may last for days, weeks, or months, depending on the duration, type, and meeting the needs of individuals (28). Brymer et al. grouped PFA in eight steps and these are presented in detail in Table.1 (27).

In addition to its positive effects on disaster-affected individuals, PFA positively impacts the rescue team, healthcare staff, and volunteers working in the epicenter (29). PFA training of emergency response teams and volunteers facilitates their ability to address their needs in the post-disaster period (30). For these reasons, PFA, which can be learned and applied quickly, should be given to all health workers.

Trauma-Sensitive mindfulness

Mindfulness can be a protective factor that can reduce the combined effects of traumatic or challenging experiences and stress. The first goal of mindfulness programs is to develop the ability to recognize and express emotions, especially through the body. Another aim is to create the ability of people to recognize the threat and impulse system in terms of stress and to switch to the soothing system when they realize these. Some approaches have integrated mindfulness into the basic steps of PFA, as well as psychoeducation and relaxation exercises (31). Hechanova et al. practiced mindfulness-based PFA and reported that mindfulness is beneficial both as a calming activity at the first moment and as a tool to help them manage their stress reactions in the future (32).

In mindfulness practices, it is also important for individuals to display a non-judgmental, compassionate approach to themselves. In recent years, the "Trauma-Sensitive Mindfulness" program has been developed by Treleaven, noting that forcing oneself to focus carefully on a particular stimulus may not always help people who have experienced trauma (33). The importance of staying in the "Tolerance Range" is emphasized in the trauma-sensitive mindfulness approach. The tolerance range is an internal support area and a starting point for all trauma-sensitive interventions. Individuals in the tolerance range are more likely to feel balanced, in the present time, and regulated. The way to support an individual to stay within the tolerance range is to refocus attention (33). For example, if focusing on the breath bothers the person, she/he can be directed to focus on a neutral object.

Eye movement desensitization and reprocessing

Developed by Francine Shapiro, EMDR is a therapy technique that combines various aspects of many therapy approaches, such as psychodynamic, cognitive-behavioral, and existential (34, 35). The main purpose of EMDR is to desensitize the participant regarding the negative event by using eye movements, to process the memories normally and to eliminate the pathology in this way (35). In EMDR, the focus is on gestures or tapping when talking about the traumatic event. Focusing on hand movements or sounds when discussing the traumatic event can help change the response to trauma memories over time. In addition, the patient is instructed with skills to help relax and cope with emotional distress (35). Many studies support using EMDR for trauma treatment after natural disasters. For example, after a single session of EMDR applied to the victims of Hurricane Andrews, a 60% recovery was reported (36). EMDR was used on 18 participants with PTSD who survived the Hanshin-Awaji earthquake, and it was reported that PTSD symptoms decreased and that recovery was maintained at a rate of 80% during the follow-up period despite "aftershocks" (37). While working with participants diagnosed with PTSD after the 1999 Marmara earthquake, Konuk et al. reported that after two sessions of EMDR, trauma symptoms decreased, and individuals preserved recovery for six months (38). Mukba,

Table 1: Eight steps of psychological first aid (27)

1. Commitment and contact:	At this stage, the aim is to initiate communication with people who have experienced a traumatic event in non-intrusive, compassionate, and helpful ways. To establish a relationship based on trust and respect, the first step for the PFA practitioner is to introduce himself by saying her/his name, state via which institution she/ he is there, and for what purpose she/ he is conducting the interview. In the first interaction occurring in the acute period, it is essential at this stage to identify and meet basic needs, such as asking about the health status of the individuals, water, blankets, etc.
2. Safety and comfort:	At this stage, the PFA practitioner takes measures related to life safety, such as taking the affected people to a safe place, removing them from hazards and risky areas at the disaster/incident site, and gathering them in secure locations. In addition, interventions to meet the security needs of the affected people and provide relief by eliminating their concerns should also be evaluated.
3. Stabilization:	Symptoms such as shock, extreme fear, panic or freezing reactions, forgetfulness, distraction, startle and alertness, etc., which can be seen especially in the first 24 hours after the disaster, may require intervention. For this reason, stabilization techniques are used to return individuals to a psychologically stable state and to help them achieve emotional calm and balance. One of the important applications used for stabilization is the grounding technique. As an example of grounding, first, the individual takes a few breaths, then says the names of the five non-irritating/neutral objects around, then breathes again, then tells the five sounds that are heard and are not disturbing to the person, then breathes again. She/ he is asked to notice five bodily sensations that do not cause discomfort.
4. Information gathering:	It is necessary to understand people's physical or psychological needs after the event and to plan the most appropriate support for them. For this purpose, observation, interviews with individuals, and/or using needs analysis forms may be helpful.
5. Practical help:	In light of what is determined during the information acquisition phase, an attempt is made to meet the needs of individuals. It is a more appropriate approach to take action regarding the basic and urgent needs first and to make a plan for meeting the needs that are less urgent and important.
6. Connecting with social support:	Promoting social connections as soon as possible and helping individuals develop and maintain them is especially important in disaster situations. Being associated with others increases the likelihood of giving and receiving support. For this reason, PFA practitioners can take a series of actions to identify the existing social support mechanisms of the individuals affected by the event and activate them.
7. Giving information about coping skills:	The most important aspect of this stage is to give individuals information about post-traumatic stress reactions. This information includes the physical, mental, behavioral, and emotional changes that may occur after the event and the methods to help them cope. In addition, psychoeducation on sleep hygiene can be provided to cope with sleep disturbances seen in a large number of the affected individuals, as well as psychoeducation on breathing and relaxation exercises to cope with anxiety and encourage relaxation. Activity planning practices can be used to help them return to their previous habits.
8. Linking with other services:	The PFA practitioner supports the establishment of relations between the affected individuals and the person, team, and institutions in charge, as well as completing the mandate, etc. In case of team changes due to other reasons, he informs his teammates about the process of the victims in their follow-up and transfers them.

Tanrıverdi, and Tanhan observed that the symptoms of individuals who showed long-term PTSD symptoms after the Van earthquake improved quickly after EMDR (39).

Trauma-focused cognitive behavioral therapy

Cognitive behavioral therapy is a recommended treatment in the mid-and long-term for PTSD (40). According to the emotion processing model, PTSD becomes permanent when individuals process trauma in a way that causes an existing sense of threat (6). This permanency is thought to be due to an excessive negative evaluation of trauma, strong sensory memories, and weak autobiographical memory. Components of CBT typically include practices related to psychoeducation, relaxation training, imagery and in-vivo exposure, cognitive restructuring,

homework, and social support (41). Trauma-focused CBT has protocols that can be used for children, adolescents, and adults. In this treatment model developed by Cohen et al., introductory sessions are conducted separately with the child and family, and then the interviews are brought together (42).

Psychopharmacological treatments in the treatment of PTSD

After disasters, individuals may experience various psychological disturbances within limits, and PFA and psychotherapeutic interventions can start, as mentioned before. It should be kept in mind that trauma-focused psychotherapy methods are recommended as the first choice in treatment guidelines (43). However, in the continuation of the first month after the trauma, the fact that the individual still shows symptoms of PTSD at a level that will impair the functionality of many areas of his busy and daily life, or the development of comorbidities such as major depressive disorder and substance use disorders may lead to the necessity of starting pharmacological treatments. During treatment, all options should be discussed in detail with the patient, and joint decisions and participation should be ensured after informing.

Drug treatment targets in PTSD can be listed as follows (44):

• Reducing the severity and frequency of intrusive symptoms,

• Reducing the tendency to interpret incoming stimuli as a repetition of trauma,

• Reducing the conditioned hyperarousal response to stimuli reminding the trauma,

• Reducing avoidance,

• Correction of depressive mood and blunting,

• Reducing psychotic and dissociative symptoms,

• Reducing impulsive aggression towards self and others

According to the PTSD guideline published by the International Association for the Study of Traumatic Stress (ISTSS) in 2018, the recommended treatments are fluoxetine, sertraline, and paroxetine, which are selective serotonin reuptake blockers; and venlafaxine, which is a serotonin noradrenaline reuptake blocker (45). Sertraline and Paroxetine are approved by the Food and Drug Administration for the treatment of PTSD. The guideline states that the evidence for quetiapine's effectiveness has increased. It has also been noted that amitriptyline, imipramine, mirtazapine, olanzapine, divalproex, topiramate, lamotrigine, tiagabine, and ketamine can be used in the treatment of PTSD, but still, the level of evidence is not sufficient to recommend them (45). Second-generation antipsychotics, especially quetiapine and olanzapine, as augmenting agents in PTSD and major depressive disorder, can reduce impulsivity or the presence of psychotic symptoms. Mood stabilizers such as lamotrigine, topiramate, and divalproate can be used in the treatment of PTSD by playing a role in balancing the levels of the excitatory neurotransmitter glutamate and the inhibitory neurotransmitter gamma amino butyric acid (GABA). Buspirone and beta-blockers can be used for hyperarousal symptoms, while Prazosin is particularly effective in preventing nightmares. The use of benzodiazepines in the treatment of PTSD is not primarily recommended due to potential disinhibition, difficulty integrating the traumatic experience, adversely affecting the psychotherapy process, and risks of abuse/dependence. However, they can be used for a short time in acute agitation.

Drug treatments effectively improve PTSD symptoms through serotonin, norepinephrine, and GABA, by stimulating amino acid glutamate and dopamine, which are effective in the fear and anxiety pathways of the brain. NMDA (n-methyl-d-aspartate) and AMPA (amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid) are target receptors with many potential values. There is a need for effective drugs in the treatment of PTSD through new and more specific mechanisms (46).

Hopes for the future

Based on the research in the last 25 years, the concept of post-traumatic growth (PTG) has been defined, which states that most individuals who survive disasters and traumatic events emerge from these difficult experiences with positive changes (47). Among the positive changes in PTG are improved relationships, a greater appreciation of life, a gratitude for life, and reaching a deeper spiritual meaning (48).

The vulnerability of disaster survivors profoundly shakes their assumptions about the safety, controllability, and predictability of the world (49). Individuals may question their beliefs about a fair world or the idea that "good things happen to good people and bad things happen to bad people" (50). With these interrogations, disaster survivors need to construct a new hypothetical world containing their post-disaster life's realities. Survivors can increase their self-efficacy and personal strength by becoming aware of their ability to survive without the living conditions they were used to before this disaster they never expected (50). In these new living conditions, spiritual and religious changes may occur. After the disaster, survivors may frequently use religious coping methods and forge to bond with God or create new life purposes. Finally, disasters can bring individuals, families, and communities together in ways previously unimaginable and offer many opportunities for changes in relationships with others. Relationships can gain new meanings due

to increased social values, connecting with others, and gains associated with PTG (50).

CONCLUSION

Experiences during and after natural disasters such as earthquakes can cause various psychological effects on the individuals who experienced the disaster and the helpers who work in the region. It is important to make psychosocial assessments for both groups after disasters to see their needs and to apply appropriate treatments. Although major disasters negatively affect many individuals' perceptions of a fair and safe world, it should not be forgotten that individuals and the community can also become stronger after traumatic events and that there is always hope.

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