

## Disaster Experience of Turkey: An Overview from a Psychological Perspective

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The aim of this article is to elaborate on contemporary Turkish articles on natural disaster and grief. Although traumatic experiences have been a part of Turkish culture for hundreds of years, studies on psychological trauma are only a recent development in Turkey. The first Turkish article describing posttraumatic symptoms by Osman (1916) was followed by a lengthy period of silence on the topic of psychotrauma until 1970s. However, a dramatic increase in the number of scientific work and publications was observed after the 1999 Marmara earthquakes. Therefore, psychological trauma might be considered a neglected issue in the field of mental health. This current article summarizes the empirical research on natural disasters occurred in Turkey.

*Keywords:* Turkey, disaster, psychotrauma, Marmara earthquake

Mass traumatic experiences have been a part of Turkish culture for hundreds of years. Human made traumas such as wars, ethnic cleansing, and displacement were the main sources of these mass traumatic experiences. At the end of World War I, the 600-years-old Ottoman Empire, previously spread across three continents, collapsed. Nearly five million Muslim, Turkish and other Ottoman citizens were killed through internal conflicts and by occupying imperialist forces. Millions of them were forced to leave their loved ones and their lands. After the Turkish Parliament was established in 1920, Turks fought an independence war and the Turkish Republic was founded in 1923. However, Turkish people could not find a way to deal with their sorrow and grief brought both by the dawn of the Ottoman Empire and the experiences during the Independence War. Furthermore, generations of the Turkish Republic experienced several natural disasters, but the 1999 earthquake was the worst of all in every aspect. Although Turkish society is based on strong emotional support networks, denial and silence have been the main strategies to cope with these struggles. These are the responses which are still prevalent for some grief reactions in modern Turkish society. The narratives, oral histories, qualitative research, and other research methods about the grief history of Turkey is another challenging topic. This article discusses the empirical research on natural disaster and grief work.

### *Pioneering Turkish Articles on Psychotrauma*

Despite the widespread occurrence of traumatic events, studies

on psychological trauma are only a recent development in Turkey. Until the Marmara Earthquake, only a limited number of studies had been conducted in Turkey (e.g., Basoglu et al., 1994; Karanci and Rustemli, 1995; Miral, Özcan, Baykara, Yemez, and Tayyar, 1998; Rüstemli and Karancı, 1996; Sener, Ozdemir, Senol, Karacan, & Kayın, 1997; Tek, Onder, and Duruari, 1993), and psychotrauma was a neglected issue. However, the earthquake experience led to an increased interest in and work on psychological trauma. The current article tries to follow the scientific paths of earthquake and grief studies in Turkey.

The first Turkish article describing posttraumatic symptoms was entitled "War Neuroses" and was published in 1916 by Mazhar Osman (cited in Yanikdag, 2010), one of the founders of discipline of psychiatry in Turkey. Osman considered that some of these posttraumatic symptoms were the components of neurasthenia and indicated that these symptoms appeared to occur following events such as railroad accidents, wars, earthquakes, and other natural disasters. He suggested that the traumatic experience itself might cause hysteria or neurasthenia, and in some cases, it might even result in insanity. He also mentioned the need for providing compensation for those individuals experiencing posttraumatic psychological disturbances and highlighted that although the implementation of such compensation in Turkey did not appear to be likely at all, this issue was currently under debate in Western countries (Erkoc, 2000)

Osman's article was followed by a lengthy period of silence on the topic of trauma. For instance in 1939, Erzincan, a city in eastern Turkey, was shaken by a devastating earthquake with a total death toll of 40,000 and 100,000 injured. This happened only a year after another significant loss for the whole country, the death of 'Atatürk', the founder of the modern Turkish Society and Turkish Republic. However, there was no scientific work regarding this mass trauma. The neglect of the issue continued until the

appearance of a sharp renewed interest about the effects of traumatic experiences in the last 20 years.

When the papers published from 1972 to 2002 are reviewed, it is seen that during that period approximately 250 papers were written on epidemiology, etiology, and treatment of posttraumatic symptoms (Aker, Sorgun, Aksoy, & Bay, 2004). The number of papers published per year started to increase after 1993, however a sharp increase was observed in 1999, immediately following the Marmara Earthquake. The earthquake caused widespread devastation, and the need for the treatment and rehabilitation of survivors was overwhelming. This need led to the activation of many governmental and nongovernmental organizations (NGOs) and to the involvement of researchers for the provision of such services and the implementation of studies in the area.

### *Natural Disasters and Marmara Earthquakes*

Turkey is not only an earthquake-prone country but it has been experiencing other kinds of natural disasters as well, which victimize thousands of people. According to the publication of The Ministry of Public Works and Settlement titled "The Spatial and Statistical Distribution of Disasters in Turkey – Inventory on Disaster Characteristics" (1999), 44 % of 35741 settlement units in Turkey have undergone a disaster at least for once; and 55% of the disaster damages in the country are caused by earthquakes, 21% by landslides, 8% by floods, 7% by rock falls and 2% by avalanches. Earthquakes are considered as the most devastating among these, since 92% of the land, 95% of the population, and 75% of industrial investments are located on a seismic belt (Ozmen & Nurlu, 1999).

Earthquakes capable of causing extensive damage are a well-known reality of Turkey. In the years prior to the Marmara earthquake, the early studies on the mental health effects of earthquakes were conducted following the Erzincan (1992) and the Adana (1998) Earthquakes. These studies mostly focused on prevalences and risk factors for the development of mental disorders. Karanci and Rustemli (1995) compared 461 individuals inhabiting Erzincan (epicenter) with 129 individuals from the unaffected capital Ankara. Phobic anxiety was both more prevalent and more severe in the Erzincan group. After the Adana earthquake (1998), Uguz and Seydioğlu (2003) conducted a prospective cohort study. They started the cohort with 163 participants; however, in the fifth year of the study only 78 participants remained. Posttraumatic stress disorder (PTSD) prevalences were 15.6 % during the second year and 17.9 % during the fifth year of the study. The noticeable increase in the fifth year was assumed to be related to the effect of the Marmara Earthquake which is a distinctive point (Uguz and Seydioğlu, 2003).

The geographical region of Marmara is located on one of Turkey's major seismic belts. This belt crosses the entire northwestern territory of Turkey. This territory was destroyed by two consecutive earthquakes in 1999, occurring at two different but close locations. The first earthquake was in August and the second one was just a few months later in November. Due to the earthquake, 17,000 people lost their lives, approximately 44,000 were injured, and 25,000 were displaced (Karanci, 2010).

Unorganized urbanization, industrialization, and poverty have been considered as possible reasons for such a large number of casualties. The earthquake and its aftermath not only affected the community's mental health but also shaped Turkish mental health professionals attitudes and research interests and led them to study

disaster-related psychological trauma. This may be conceptualized as a window of opportunity or psychological growth after a big catastrophe. Indeed, between 1970 and 2003, around 25% of the literature on psychological trauma originating from Turkey is associated with earthquakes. Some of those studies have been listed in a review of epidemiological findings conducted after the 1999 Marmara Earthquake (Aker, 2006) (see Table 1). Consecutive studies were conducted in the district of Golcuk (the town at the epicenter of the first earthquake), Avcılar (the most affected district in İstanbul), Duzce (the town at the epicenter of the second earthquake), Bolu (also a town affected by the second earthquake), and Ankara (the capital city of Turkey, which was unaffected by the earthquakes). In these studies, 2,437 participants were randomly selected from the populations of Golcuk, Avcılar, Duzce, and Bolu (epicenters and affected areas), and 526 participants were selected from a population of earthquake survivors displaced and settled in Ankara. PTSD prevalences were found to be 17 % in Bolu (affected district), 22 % in Golcuk (epicenter), 37 % in Duzce (epicenter), and 26% in Ankara (displaced earthquake survivors). Major Depression (MD) prevalences were found to be 12 % in Bolu, 15% in Golcuk, 28 % in Duzce, and 11 % in Ankara. It is interesting evidence that even the survivors who were displaced from the earthquake zones and started living in safe districts had sustained complaints on traumatic stress and depressive problems (Kilic & Ulusoy, 2003).

Widespread screening studies with a prospective design were performed with the purpose of rehabilitation and treatment in the Avcılar district of Istanbul following the Marmara Earthquake: 9,442, 15,453, 15,597, and 1,800 individuals were screened for PTSD in the first 3 months, between the sixth and eighth months, between the eighteenth and twentieth months, and between the twenty-ninth and thirtieth months, respectively. The corresponding prevalence rates for PTSD were found to be 38.8%, 23.4 %, 8.1 %, and 7.8 %, respectively, at different time intervals (Karamustafalıoğlu, 2004). These findings point out that the psychopathology is decreasing as time goes by, but also underlines the importance of earthquake related psychopathology as a community mental health problem.

Epidemiological studies conducted in ten cities, prefabricated settlements, and district centers of Kocaeli (a major industrial town extensively affected by the first earthquake) during the first two years following the earthquake, yielded PTSD prevalence rates of 23% to 43 % and major depression rates of 16% to 31 % (Livanou, Basoglu, Salcioglu, and Kalendar, 2002; Tural, et al., 2004). Since the participants of these studies were the worst affected survivors. The results depend on a somehow biased sample, and therefore must be interpreted carefully.

Three years after the earthquake, a study including a representative sample of 683 participants from the Kocaeli city center investigated the prevalence of PTSD and other psychiatric pathologies by using the Composite International Diagnostic Interview (CIDI) and other psychopathology scales (Traumatic Stress Symptom Scale, General Health Questionnaire, Beck Depression Inventory, face-to-face interviews etc). Three-year prevalence rates of PTSD and MD were found to be 19.2 % and 18.7 %, respectively, whereas point-prevalence rates during the month the interview was performed were 11.7 % and 10.5 %, respectively. PTSD and MD comorbidity was found to be 4.4 %, and cases of PTSD with comorbid MD were found to be more refractory to treatment (Tural et al., 2004). These figures also show the chronic nature of the trauma-related syndromes and indicate

these problems as a public health matter.

There are also some studies on high-risk groups, including rescue workers (e.g., Yilmaz & Sahin, 2007), fire department workers (e.g. Duruduygu, Aker, & Acicbe, 2003), Turkish Petroleum Refineries Corporation (TPRC) employees (e.g. Aker, Acicbe, Sorgun, et al., 2003) and health workers (e.g. Sungur & Kaya, 2001), investigating risk factors for developing PTSD and other comorbid disorders. For instance, in a cross-sectional study of a representative sample of 422 participants from among TPRC employees, self-report scales yielded 7.6 % PTSD and 4.4 % MD prevalence rates; risk factors determined for employees were female gender, living alone, being divorced or separated, history of psychiatric illness, family history of psychiatric illness, and lack of psychosocial support. In addition, it was found that the incidence of work-related accidents increased after the earthquake and that those involved in such accidents had previously experienced a greater number and more varied forms of traumatic events, had been seeking treatment more, had more pronounced anxiety, and a worse level of functioning (Aker et al., 2003).

The negative impact of the earthquake on mental health was demonstrated by the development of PTSD, depression, adjustment disorder, familial problems, sexual problems, anxiety, and social isolation.

Despite methodological differences, studies demonstrated that post-disaster mental health problems are very prevalent and long lasting. Risk groups and vulnerability factors were an additional topic of investigation in the post earthquake period. A review of studies revealed several risk factors including level of pre-trauma preparedness, the objective and subjective (perceived) intensity and severity of the earthquake, loss of significant others, loss of resources, meaning attributed to the earthquake experience, participation in search-and-rescue efforts, being female, being elderly, low level of education, being single or living alone, presence of previous traumatic experiences, personal history of physical or psychiatric illness, lack of social support, and family history of psychiatric illness (Yilmaz, 2009).

Research findings suggest that marked PTSD symptoms are also common among children and adolescents after a major disaster (Aker et al., 2003; Gokler, 2001; Kilic & Ulusoy, 2003). A recent review of the relevant studies indicates that PTSD symptoms appeared in 60-70% of children who had experienced an earthquake. In case of severe experiences this percentage increased up to 75% (Gokler, 2009). The research reveals important findings concerning the risk factors that increase the probability of severe post-disaster responses in children and adolescents after a disaster: a) Individual Characteristics of the Child (i.e., age, gender, psychological problems prior to the disaster, history of past trauma); b) Family Factors (e.g., over-reaction of the parents; parental psychopathology); c) Factors Related to Disaster Experience (e.g., severity and the frequency of disaster experience; fear and anxiety during the earthquake; distance to the centre of the earthquake; loss of a loved one, injuries of the child/adolescent or relatives, loss of property; witnessing traumatic scenes, etc.) Post-Disaster Environmental Factors (e.g., poor living conditions/sheltering, insufficient provision of the needs, etc.). It was also shown that the subjective appraisal of the disaster (i.e., perceived threat with regard to one's own life and safety, as well as that of loved ones) has an influence on the nature and the extent of the trauma response (Gokler, 2001).

The clinical picture regarding children and adolescent survivors of the Marmara Earthquake also consists of other psychiatric

conditions such as enuresis, adjustment, and conduct disorders, all of which were found to be highly prevalent (Aker et al., 2003; Kilic and Ulusoy, 2003).

Both community-based and high-risk group studies following the earthquake provided a picture regarding the psychological health services after the earthquake. The efforts targeting psychosocial planning; and disaster management have been progressing towards a more systematic structure through the years following the Marmara Earthquake (Gokler & Yilmaz, 2005). An overview of the post trauma studies in Turkey lead us to propose the following suggestions:

1. Even several years after the earthquake, syndromes caused by the trauma, mainly MD and PTSD, remain a common public health problem.
2. The coexistence of MD and PTSD makes treatment more difficult. Therefore, special attention must be devoted to these two disorders in terms of screening and psychosocial service planning.
3. In order to provide mental health services after disasters, the usual psychiatry treatment practices are not sufficient and should be replaced with community based interventions.
4. Work-place-centered models are significant in facilitating mental status screening and help seeking behavior.
5. Disasters also cause traumatic stress symptoms, disturbances, and functional losses in hospital workers, particularly in health professionals, though at a lower rate than in the general population. Taking the many traumatic events they encounter into consideration, hospital workers, especially health professionals, might be considered as a special group of interest.
6. The preparedness of health professionals for disasters and the security of the work place would positively affect the quality of their service and mental status.
7. Rescue workers, considered another special or high risk group, should be given psychosocial support since they are exposed to traumas and also must help traumatized people.
8. Studies designed for the screening of psychological problems in which risk groups must be supported by psychological support programs.

Table 1.  
Epidemiological studies in Kocaeli after August 17 (Aker, 2006)

Researcher	Site	Date	Sample group	Number of subjects	Scales	Result
Basoglu, Salcioglu, Livanou (2002)	Golcuk tent cities and prefabricated houses	8 months later	House interviews in tent city and cities and prefabricated houses	1000	TSBÖ*	43% PTSD 22% MD
Livanou, Basoglu, Salcioglu et al (2002)	Degirmendere District Center, Golcuk tent cities and prefabricated houses	14 months later	Applications for treatment and counseling	1027	TSBÖ*	63% PTSD 42% MD
Basoglu, Kilic, Salcioglu and Livanou	Degirmendere and Avcılar	14 months later	Randomly chosen sample group	530	TSBÖ*	23% PTSD 16% PTSD+MD
Tural, Coskun, Onder et al. (2004)	Izmit tent city	18 months later	Randomly chosen sample group	910	TSBB-T**	25% PTSD
Salcioglu, Basoglu and Livanou (2003)	Golcuk prefabricated houses	20 months later	House interviews in prefabricated houses	586	TSBÖ*	39% PTSD 18% MD 11% PTSD
Tural, Aker, Onder et al. (2004)	Izmit City Center	36 months later	Categorized graded randomly chosen sample group representing city center	683	CIDI***	10.5% MD 4.4% PTSD+MD
Aker, Acicbe, Sorgun et al. (2003)	TÜPRAŞ	36 months later	Randomly chosen sample group representing refinery workers	422	TSBÖ*	7.6% PTSD 4.4% MD
Acicbe, Aker, Ozten et al. (2003)	Kocaeli University Hospital of Faculty of Medicine	36 months later	All workers of the institution except doctors	413	TSBÖ*	2.7% PTSD 1% MD
Duruduygu, Aker and Acicbe (2003)	Izmit Metropolitan Municipality Fire Brigade Department	36 months later	All workers	71	TSBÖ*	5% PTSD No MD found

<sup>†</sup> Only large sample and at risk population studies are included in the table.

\* TSBÖ: Traumatic Stress Symptom Scale-Travmatik Stres Belirti Ölçeği (Basoglu et al., 2001).

\*\* TSSB-T: Post Traumatic Stress Syndrome Screening Test-Travma Sonrası Stres Bozukluğu Tarama Testi (Tural et al., 2004b).

\*\*\* CIDI: Composite International Diagnostic Interview (Kilic and Gogus, 1997).

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