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Analysing Post-earthquake Crime through Statistical Data: Findings from the Kahramanmaraş Earthquakes

İstatistiksel Verilerle Deprem Sonrası Suçların Analizi: Kahramanmaraş Depremlerinden Elde Edilen Bulgular

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Abstract

This study analyses the occurrence of crimes in earthquake-affected regions, with a particular focus on the aftermath of the Kahramanmaraş earthquakes. Drawing on routine activity theory, social disorganization theory, and therapeutic community theory, utilizing data sourced from the Turkish Ministry of Justice, this study aims to identify the types of crimes in earthquake-affected regions and examine the dynamics of their fluctuating trends, including increases and decreases. In this study, we employed a quantitative research design, utilizing descriptive, explanatory, and comparative analysis methods. The statistical data includes eighteen different types of crimes, which we have divided into three

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main categories: property crimes, crimes against life and sexual crimes. By dividing the period into pre-earthquake and post-earthquake periods (early, late, and entire), the study compares rates of different types of crimes to determine variations and underlying reasons. Routine activity theory and social disorganization theory attempt to explain the increase in crime rates following disasters by highlighting disruptions in societal structures and daily routines. Alternatively, therapeutic community theory suggests that decreased crime rates can be attributed to social solidarity aiming to restore the pre-earthquake social order. The results indicate that the decrease in crime rates during a post-earthquake period can be attributed to the therapeutic community effect, while the subsequent rise in crime rates aligns with routine activity theory as a delayed effect. We conclude that crime rates following the Kahramanmaraş earthquake changed in different periods and according to crime types. Crime rates initially decreased across all categories in the early period, increased in all crimes during the late period, while there was a general decline in crimes other than crimes against life over the entire period.

Keywords: *crime rate, therapeutic community, routine activity, social disorder, earthquake*

Öz

Bu çalışmanın temel amacı depremler vb. doğal afetler sonrasında ortaya çıkan sosyal düzensizlik ortamının neticesinde suç oranlarında nasıl bir değişim olduğunu anlamaya çalışmaktır. Bu çalışma özellikle 6 Şubat 2023 tarihinde meydana gelen Kahramanmaraş merkezli depremlerden en fazla etkilenen beş il olan Adıyaman, Gaziantep, Hatay, Kahramanmaraş ve Malatya'daki ve tüm Türkiye genelindeki suç oranlarının deprem öncesi döneme göre nasıl bir değişim yaşadığını analiz etmektedir. Doğal afetler sonrasındaki suç davranışlarının açıklanmasında sıklıkla kullanılan rutin aktivite, sosyal düzensizlik ve teröpetik topluluk teorilerinden faydalanarak Türkiye Cumhuriyeti Adalet Bakanlığı'ndan elde edilen verileri analiz ettik. On sekiz ayrı suç türüne ait elde ettiğimiz verileri mala karşı suçlar, cana karşı suçlar ve cinsel suçlar olarak sınıflandırdık. Rutin faaliyet teorisi ve sosyal düzensizlik teorisi afet sonrası suç oranlarındaki artışı açıklamaya çalışırken, terapötik topluluk teorisi azalan suç oranlarının deprem öncesi sosyal düzeni yeniden tesis etmeyi amaçlayan sosyal dayanışmadan kaynaklandığını öne sürmektedir. Nicel desende betimleyici, açıklayıcı ve karşılaştırmalı analiz tekniğini kullandık. Deprem öncesi ve deprem sonrası olarak iki temel döneme ayırdık. Depremi hemen ertesinde ve geç dönemde suç davranışlarının durumunu analiz edebilmek amacıyla deprem sonrası dönemi erken, geç ve yekpare olarak sınıflandırdık. Suç çeşitleri, dönemler ve iller arasında bir karşılaştırma yaptık. Yaptığımız analiz neticesinde Kahramanmaraş depremi sonrası suç oranlarının döneme ve suç çeşidine göre farklılaştığı sonucuna ulaştık. Buna göre, erken dönemde tüm suçlarda azalma, geç dönemde tüm suçlarda artış ve yekpare dönemde hayata karşı işlenen suçlar dışındaki

security problems as well. The individuals with criminality potential tend to crimes in environment where living or non-living creatures has been damaged physically or spiritually because of natural disasters. In this study, the impact/s of natural environmental disasters within the scope of the theory of crime (individual - target - crime. In a study that relies on statistical data, only property crimes were analyzed based on crime statistics following the earthquakes that occurred in Elazığ and Malatya in 2020 (Avaner & Ayas, 2021). Akkuş and Efe (2016), relying solely on interviews with two law enforcement officials, explored how theft and looting arose from security vulnerabilities exposed during the 1999 Marmara Earthquake and the 2011 Van Earthquake. In their study, they indicate that in areas where security was fully restored, crime rates either decreased significantly or were not reported at all (Akkuş & Efe, 2016).

Based on quantitative data from the Turkish Ministry of Justice, this article aims to investigate whether the number of crimes increased after the Kahramanmaraş earthquakes. Although some previous studies have addressed crime incidents as part of their analysis of the socio-economic effects of earthquakes, this study seeks to fill the gap in the literature due to the scarcity of independent studies specifically focusing on the relationship between earthquakes and crime. This gap is particularly noteworthy considering Türkiye's location in an earthquake-prone region with frequent seismic activity. In this study, which uses a quantitative approach, we aimed to identify the changes in crime patterns following natural disasters. We believe that the data obtained will make a significant contribution to qualitative studies, helping to better understand the issue. For this reason, we conducted a study based on statistical data.

Method

In this study, we employed a quantitative research design, utilizing descriptive, explanatory, and comparative analysis methods. To measure the impact of the 6 February 2023 Kahramanmaraş earthquakes on crime rates, we requested from the Ministry of Justice, General Directorate of Judicial Records and Statistics. Particularly, we sought information on the number of investigation files opened by prosecutors in the five provinces most affected by the earthquakes-Kahramanmaraş, Adıyaman, Malatya, Gaziantep, and Hatay-as well as the total number of prosecution investigation files for Türkiye in general.

The data covers the five years before the earthquake and extends through the end of 2023. In order to make a comparative analysis we requested files for both the earthquake-affected provinces and also for the entire country. We aimed to ensure that the changes we observed were specifically related to the impact of the earthquake rather than reflecting a broader trend across Türkiye. Since the post-earthquake data does not cover a complete year (7 February to 31 December 2023), we calculated the monthly averages of all years and post-earthquake data for an accurate comparison.

We organized the data into specific evaluation periods. The data is divided into two main categories: pre-earthquake and post-earthquake periods. Pre-earthquake period refers to the time between January 2018 and 6 February 2023. To better understand the post-

earthquake period, we compared the data with that of the past five years. Post-earthquake period is further divided into three phases for clearer comparison. The first phase, known as the Early Period, covers the first three months following the earthquake, from February 7 to 6 May 2023. The second phase, referred to as the Late Period, extends from 7 May to 31 December 2023. Finally, the Entire Post-Earthquake Period includes all data from 7 February to 31 December 2023. In the literature on the disaster management cycle, the emergency response phase, referred to as the rescue/response phase, covers the first seven days; the relief phase extends up to three months; and the rehabilitation/reconstruction phase starts after three months and spans several years, encompassing the “new normal” (Khan, Vasilescu, & Khan, 2008; Shaw, 2006). Studies examining crime following natural disasters often define the early phase as the initial three-month period (Abe, Wiwattanapantuwong & Honda, 2014; Leitner, Barnett, Kent & Barnett, 2011). On the base of the aforementioned studies, we designated the first three months following the earthquake as the early phase in our study. The period following the first three months, which we defined as the late period, falls within the reconstruction period, which, of course, is still ongoing. This periodization allowed us to analyze changes in crime rates effectively over time.

We calculated the rate per 100,000 people, and the changes in the rates were assessed according to the previous periods. Calculating the overall change only for the entire period and comparing it to 2023 can be misleading, as the pre-earthquake data for 2023 does not represent a full-year rate. Consequently, this limitation could result in inaccurate evaluations of crime trends.

We conducted the validity and reliability analyses using IBM SPSS Statistics software, version 29. In this study, factor analysis was adopted to assess the validity of our dataset. The results indicate that the first component accounts for 74.619% of the variance, highlighting the prominence of the core structures of our measurement tool. Furthermore, we conducted a reliability analysis of the variables reflecting average monthly crime rates in five cities. Through such analysis, the consistency and validity of the data were evaluated. The Cronbach’s Alpha value from the reliability analysis was found to be 0.87, confirming that our data denote high reliability.

1. Crimes and Disasters

Social disorder and chaos following natural disasters facilitate the emergence of criminal behavior. When we examine criminological theories that seek to understand how criminal behavior emerges, we see that social disorder plays an important role in the emergence of crime. According to Cohen and Felson, and in the light of their routine activity theory, three elements must align for criminal activity to occur: an offender, a suitable target, and the absence of guardians (Cohen & Felson, 1979). The social structure disruptions following natural disasters create an environment of disorder, which facilitates the convergence of the three elements required for a crime to emerge according to the routine activity theory. In Shaw and McKay’s social disorganization

theory, social disorganization in a neighborhood is related to loss of social control. Social disorganization refers to the failure of members of a society to maintain their shared values and effective social controls (Kubrin & Wo, 2016). Studies based on the routine activity theory and social disorganization theory reveal that natural disasters increase inequality thus leading to higher crime levels (Prelog, 2016; Zahnow et al., 2017).

Various damages occur in the social structure during and after disasters. Some of them are the dysfunctionalization of institutions and the disappearance of some norms and rules (Firat, 2022). This situation leads to the emergence of fear of crime, as well as criminal behavior. The emergence of fear of crime is not only related to crime rates or numbers (Lee, 2007; Wilson & Kelling, 1982). People who experience fear of crime do so by observing their surroundings and analyzing the associates' risks (Ferraro, 1995) Various studies have shown that fear of crime escalates in communities characterized by social disorder and chaos (Erkan and Sevin, 2018; Ferraro, 1995)

On the other hand, some studies reveal that crime rates decrease when community awareness increases after a natural disaster (Barton et al., 2020; Fritz, 1996; Weil, 2020). Among these studies, Weil (2020) contributes to the literature by conducting both statistical and survey-based analyses. Weil (2020) concludes that certain forms of social solidarity can be harmful, citing examples such as specific groups monopolizing resources to the detriment of others or communities organizing to evade shared responsibilities. According to Drabek, while the issue of social solidarity has many side streets, a central observation is that crises can trigger short-term collective unity. During such events, various forms of antisocial behavior, including the commonly anticipated looting, are often temporarily suspended (Drabek, 1986). Another study shows that after Hurricane Andrew in Florida in 1992, the crime rate decreased due to an increase in motivated offenders and explicit targets, but also due to an increase in informal guardianship (Cromwell et al., 1995). After the 2011 Great East Japan earthquake, crime rates were found to have fallen (Fukuma et al., 2017).

Although it is widely believed, mostly due to media portrayals, that criminal activity rises after natural disasters, it is essential to analyze crime rates in relation to situational factors. The news reflected in the media predominantly focuses on property crimes, particularly looting and theft, thus such media coverage can trigger fear of crime. After earthquakes and other natural disasters, fear of crime occurs among the public due to the news reflected in the media (Tezcan, 2023). The perception that crime rates, especially looting, increase after disasters is known as “the disaster myth” (Nogami, 2018; Quarantelli and Dynes, 1972; (Nogami, 2018; Tierney et al., 2006; Wenger et al., 1975).

According to the 2010 National Urban Citizen Safety Survey conducted in Chile, due to media influence, people living in areas far from the epicenter of the earthquake are more likely to believe that crime will increase after the earthquake than those living close to the epicenter (García Hombrados, 2020). This phenomenon of media-induced fear of crime following natural disasters is not limited to any one region or time period but is

observed globally across different countries and contexts. For example, similar media portrayals of looting and crimes following earthquakes have been observed in different parts of the worlds. In New Zealand, The New Zealand Herald newspaper published on 4 September 2010, with the headline “Looters hitting Christchurch following quake” (NZPA, 2010), reflecting widespread concern about property crimes in the aftermath of the earthquake. Similarly, in Japan, The Asahi Shimbun newspaper reported on the increasing threats of looters and fraudsters, with the headline “Quake victims now battling looters, thieves and scam artists” (The Asahi Shimbun, 2024). In Türkiye, following the Kahramanmaraş earthquake, media outlets promptly reported on concerns about looting, with headlines such as “Looting and hygiene worries add to rescuers’ burden in Turkey” (Kucukgocmen, 2023), indicating that public anxiety about criminal behaviors was also prevalent. There is no direct correlation between high fear of crime and actual crime rates. For instance, García Hombrados (2020) observes that, despite a high number of media reports about property crimes, overall property crime rates are decreasing after the 2010 Chilean earthquake. In Türkiye, the fear of crime amplified by the media after natural disasters appears to be greater than the actual crime rates (Tezcan, 2023). However, the fact that fear of crime exceeds the actual occurrence of crime does not necessarily indicate that crime is nonexistent or has decreased. Cooperation has an important role in crime reduction, as solidarity increases after natural disasters concerning the desire to overcome common suffering and return to the previous order as soon as possible. The resulting solidarity has a role in increasing the cost of committing a crime in neighborhoods (García Hombrados, 2020).

2. The 2023 Kahramanmaraş Earthquakes

Two major earthquakes occurred on 6 February 2023, with the epicentre in Kahramanmaraş, Türkiye. The first earthquake had a magnitude of 7.7 at 04:17 a.m., followed by a second earthquake with a magnitude of 7.6 at 1:24 p.m. The affected area of the earthquake was around 1,200,000 km² (SBB, 2024), with a ruptured fault that spans 450 km, affecting a population of 13 million in Türkiye. This covers an area larger than that of many countries and has a population greater than that of many countries, effecting 11 provinces in total, five of which were affected the most: Adıyaman, Gaziantep, Hatay, Kahramanmaraş and Malatya. Furthermore, according to the official reports, approximately 54.000 people died and approximately 107.000 people were injured in the earthquakes (Ministry of Internal Affairs, 2024; SBB, 2024). The total number of destroyed buildings in the disaster was 18.200 and the number of severely damaged and destroyed buildings was 90.609 (SBB, 2024). The magnitude of the figure indicates the extent of the social and economic impact of the earthquake. Table 1 indicates the degree of earthquake damage in the provinces.

Table 1: Degree of Earthquake Damage in the Provinces

	Death rate ‰	Destroyed buildings rate ‰	Debris removed rate ‰
Adıyaman	13,2	9,7	26,9
Gaziantep	1,8	1,9	5,2
Hatay	14,3	8,2	30,8
Kahramanmaraş	10,8	6,4	24,9
Malatya	1,5	7,0	34,4

3. The Crimes After 2023 Kahramanmaraş Earthquakes

The scale of destruction caused by the Kahramanmaraş earthquakes points to a transformation of the natural disaster into a social crisis, leading to the breakdown of social control and the emergence of an environment where disorder prevails. Crime statistics from the Ministry of Justice will support understanding the post-earthquake environment. The statistical data includes eighteen different types of crimes, which we have divided into three categories:

- property crimes
- crimes against life
- sexual crimes

We categorized the crimes of theft, fraud, looting, damage to property, disposition of lost or mistakenly seized property, and violation of residence immunity as *property crimes*; deprivation of liberty, deliberate killing, negligent killing, deliberate injury, negligent injury, maltreatment, persecution, and wye as *crimes against life*; sexual abuse of children, sexual harassment, sexual intercourse with minors, sexual assault as *sexual crimes*.

Table 2: The number of crime files (calculated monthly average) and crime rates per 100.000 people according to crime types in the earthquake-affected provinces

		<i>Property Crimes</i>		<i>Crimes Against Life</i>		<i>Sexual Crimes</i>	
		<i>N</i>	<i>Rate</i>	<i>N</i>	<i>Rate</i>	<i>N</i>	<i>Rate</i>
<i>Pre-earthquake</i>	2018	7.509	121	5.792	93	825	13
	2019	7.289	116	6.012	96	857	14
	2020	6.847	108	5.511	87	757	12
	2021	7.593	118	6.056	94	845	13
	2022	9.679	150	6.768	105	927	14
	2023 (B. E.)	10.184	165	6.863	111	846	14
<i>Post-earthquake</i>	Early Period	5.841	95	6.124	99	377	6
	Late Period	10.664	173	8.233	133	786	13
	Entire Period	9.107	148	7.507	122	650	11

Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

The result reveals that the number of crimes and rates decreased in the early period and increased in the late period compared to the past periods (Table 2). When the entire period after the earthquake is analyzed, there is a decrease in crimes against property and sexual crimes, while there is an increase in crimes against life.

3.1. Property Crimes

The majority of studies on the occurrence and changes in crime following natural disasters focus on property crimes. Research examining property crimes after earthquakes and other natural disasters indicates that it is not possible to make a general conclusion about changes in crime rates following such events. When we look at the crime rates, the result reveals that the property crime rates decreased in the early post-earthquake period and increased in the late post-earthquake period compared to the past periods. When the entire period after the earthquake is analyzed, there is a decrease in crimes against property (Table 3).

Similar trends of crime rate fluctuations can be observed in other regions disrupted by natural disasters, however local context and recovery processes seem to highly influence these outcomes. For instance, studies of the 2010 Chilean earthquake show that, after the earthquake, the population organized itself to overcome the damage caused by the earthquake and, as a result, crime rates decreased (Larranaga & Herrera, 2010 cited in García Hombrados, 2020), “despite the limited capacity of formal institutions to enforce the law in the days following the earthquake, the looting of dwellings and habited places was a very rare event” (Grandón et al., 2014 cited in García Hombrados, 2020). According to Roy’s study on earthquakes in India, there is an increase in crimes against property after natural disasters (Roy, 2010). These two examples show similarities with the situation in Türkiye. The first example aligns with the trends in crimes in Türkiye during the early post-disaster period, while the second reflects trends in Türkiye a year after the disaster.

The decrease in the rate of crimes against property in the immediate aftermath of the Kahramanmaraş earthquake can be explained by the collectivity in the community, as well as by the decreased effectiveness of security forces and judicial authorities. To test this, we examined the number of crime reports filed in Türkiye immediately after the earthquake. There was an approximate 10% decrease in the property crime rate immediately after the earthquake in Türkiye (Table 3). Therefore, it does not seem possible to explain this phenomenon with the decrease in the effectiveness of judicial authorities and security forces. Since it seems to be more related to collectivity.

Table 3: Comparison of the rate (per 100.000) and changes (%) in property crimes between earthquake provinces and the national average (Türkiye)

		Earthquake Provinces			Türkiye		
		Property Crimes (N)	Rate	Change (%)	Property Crimes (N)	Rate	Change (%)
Pre-earthquake	2018	7.509	121		106.496	130	
	2019	7.289	116	-4	100.349	121	-7
	2020	6.847	108	-7	91.734	110	-9
	2021	7.593	118	10	107.168	127	15
	2022	9.679	150	26	126.521	148	17
	2023 (B. E.)	10.184	165	10	132.133	155	4
Post-earthquake	Early Period	5.841	95	-43	119.247	140	-10
	Late Period	10.664	173	83	125.029	146	5
	Entire Period	9.107	148	-1	122.403	143	-3

Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

When analyzed by crime types, there is a decrease in all crime types in the early post-earthquake period compared to 2022. However, there is an increase in the late period, except for looting and violation of residence immunity. It is seen that the type of crime against property with the highest rate of increase in the late period is fraud. Furthermore, when analyzed by province, the crime rate decreased in all provinces in the early period compared to both the pre-earthquake period in 2023 and 2022. Among these provinces, the decrease in the crime rate in Gaziantep province, which has the lowest level of damage among these provinces, is close to Türkiye in general (-13%, pre-earthquake 2023; -7%, 2022), while it shows a very significant decrease in other provinces (from -59% to -71%, pre-earthquake 2023; from -49% to -63, 2022) (Table 4).

Table 4: Property crime rate and changes in the rates by provinces

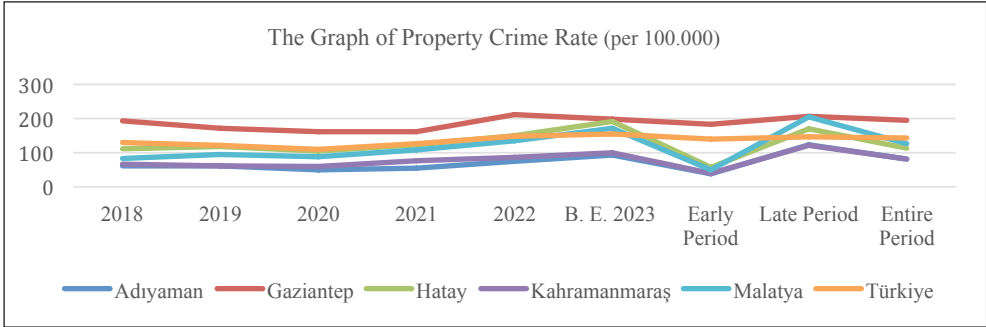
		Adiyaman		Gaziantep		Hatay		Kahramanmaraş		Malatya	
		Rate	Change (%)	Rate	Change (%)	Rate	Change (%)	Rate	Change (%)	Rate	Change (%)
Pre-earthquake	2018	61		193		111		66		84	
	2019	62	2	171	-12	117	6	61	-8	94	13
	2020	49	-21	162	-5	105	-11	59	-3	88	-7
	2021	55	12	161	-1	123	18	76	28	108	23
	2022	74	35	212	32	150	22	87	14	135	25
	2023 (B. E.)	94	26	198	-7	191	27	100	16	171	27
Post-earthquake	Early Period	38	-59	184	-7	57	-70	40	-60	49	-71
	Late Period	123	224	206	12	170	198	122	207	205	315
	Entire Period	81	9	195	-8	113	-24	81	-7	127	-6

Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

Analyzing the entire post-earthquake period, an increase in crime rates is observed in all provinces compared to 2022, except for Gaziantep, where the increase is in line with the national trend in the entire country. However, compared to the pre-earthquake period of 2023, only in Hatay, the province with the highest loss of life and the most significant debris removal, is there an 11% decrease in crimes against property.

The graph clearly shows a decline in the early and entire periods, followed by an increase in the late period (Graph 1).

Graph 1: Property crime rate (per 100.000)



Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

As seen in Graph 1, in the immediate aftermath of the Kahramanmaraş earthquake, crimes against property declined slightly in Gaziantep and across Türkiye, but crimes against property declined sharply in other affected provinces, and after the first three months, crimes against property started to increase in all earthquake-affected cities. This is in line with Weil (2020), who demonstrates the relationship between collectivity and crime rates after natural disasters. Weil's findings indicate that solidarity increases immediately after the disaster and returns to its previous level as recovery progresses. Disaster-related altruism and helping behavior fade over time (Weber & Peek, 2012). The fact that the magnitude and impact of the Kahramanmaraş earthquake may also have an impact on the long-term increase in crimes against property supports Prelog's (2016) finding that there is a relationship between the magnitude of the earthquake and crimes against property. The finding by (García Hombrados, 2020) that the significant loss of workplaces and decrease in job opportunities resulting from the severity of the earthquake led to an increase in property crimes can explain the rise in property crime rates after the initial damages of the Kahramanmaraş earthquake were eliminated.

3.2. Crimes Against Life

Studies on crimes against life after natural disasters often rely on both survey research and crime statistics. Zahran et. Al (2009) examined the crime rates after different natural disasters in Florida and revealed that violent crimes decreased. In contrast, Adams and Adams (1984) reported a significant increase in violent crimes following the eruption of Mount St. Helens in 1980.

When we look at the rate of change in crimes against life after the Kahramanmaraş earthquake, we see that in the early period, there is a decrease of 11% in the earthquake region compared to the previous year, while there is a decrease of 4% across Türkiye. In the entire period, there is a significant increase of 17% in the cities in the earthquake region compared to the previous year (Table 5).

Negligent homicide and negligent injury, which are included in the category of crimes against life, increased significantly in all five provinces most affected by the earthquake in the early. It is related to the applications of the relatives of the deceased and injured people who remained in the rubble of the buildings that collapsed after the earthquake. The much lower number of investigation files in the early period can be explained by the low effectiveness of the judicial authorities, but it can also be explained by the fact that people have not yet applied for loss of life or injuries as their priority is to survive after the disaster.

Table 5: Comparison of the rate (per 100.000) and changes in (%) the crimes against life between earthquake-affected provinces and the national average (Türkiye)

		Earthquake Provinces						Türkiye					
		All crimes against life			Crimes against life without negligent crimes			All crimes against life			Crimes against life without negligent crimes		
		N	Rate	Change (%)	N	Rate	Change (%)	N	Rate	Change (%)	N	Rate	Change (%)
Pre-earthquake	2018	5.792	93		3.287	53		76.785	94		45.538	56	
	2019	6.012	96	3	3.501	56	5	76.653	92	-2	46.648	56	1
	2020	5.511	87	-10	3.418	54	-4	68.508	82	-11	43.729	52	-7
	2021	6.056	94	9	3.575	56	4	76.347	90	10	46.861	55	6
	2022	6.768	105	11	4.089	63	13	84.821	99	10	52.643	62	12
	2023 (B. E.)	6.863	111	6	4.045	66	4	84.971	100	0	52.342	61	-1
Post-earthquake	Early Period	6.124	99	-11	1.887	31	-53	81.297	95	-4	47.605	56	-9
	Late Period	8.233	133	34	4.152	67	120	97.043	114	19	55.389	65	16
	Entire Period	7.507	122	17	3.020	49	-23	89.170	104	5	51.497	60	-2

Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

Excluding negligent crimes, the rate of crime against life decreased by 53% in the early period in the earthquake provinces, while it increased by 120% in the late period. In the entire period, there is a 23% decrease compared to 2022. Excluding negligent crimes, it is much higher than the decrease in crimes against life in Türkiye (2%) (Table 5). This shows that the decrease in crimes against life in earthquake provinces is related to the concept of therapeutic community. It is clear that the increase in all crimes against life, including negligent crimes,

is not a rise caused by the environment caused by social disorder, but is related to the lawsuits filed for the loss of life from building collapses after the earthquake.

Table 6: Rate of crimes against life and changes in the rates by provinces

		Adıyaman		Gaziantep		Hatay		Kahramanmaraş		Malatya	
		Rate	Change (%)	Rate	Change (%)	Rate	Change (%)	Rate	Change (%)	Rate	Change (%)
Pre-earthquake	2018	73		98		94		91		99	
	2019	75	3	102	4	96	2	92	1	100	2
	2020	65	-14	91	-11	89	-7	79	-14	96	-4
	2021	67	3	104	13	93	5	87	9	105	9
	2022	69	2	118	14	102	9	96	11	114	9
	2023 (B. E.)	68	-1	116	-2	119	17	102	6	129	13
Post-earthquake	Early Period	138	103	99	-15	145	22	61	-40	31	-76
	Late Period	122	-12	146	48	130	-10	114	87	141	361
	Entire Period	130	90	123	4	137	35	88	-9	86	-25

Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

When we analyze the crimes against life by provinces, excluding the crimes of negligence, we see that there is a decrease in all provinces in the entire period compared to 2022 (Table 7). In the early period, it was observed that there was a decrease in crimes against life in the earthquake-affected provinces and Türkiye in general, albeit at different rates (Table 6).

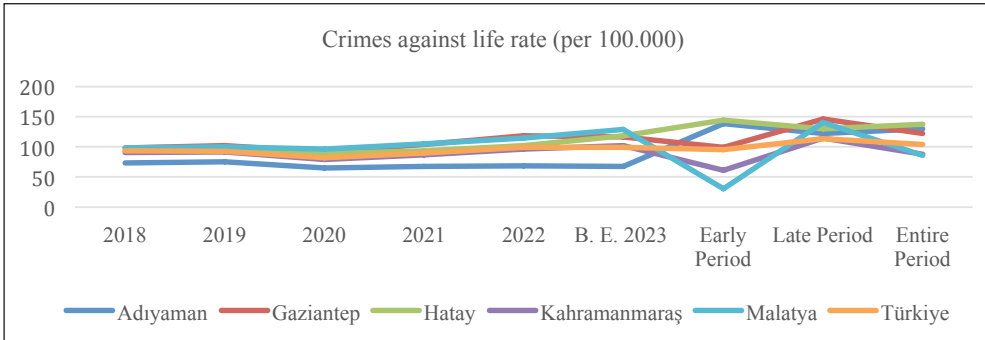
Table 7: Rate of crimes against life and changes in the rates by provinces excluding negligent crimes

		Adıyaman		Gaziantep		Hatay		Kahramanmaraş		Malatya	
		Rate	Change (%)	Rate	Change (%)	Rate	Change (%)	Rate	Change (%)	Rate	Change (%)
Pre-earthquake	2018	34		56		54		54		57	
	2019	39	14	58	4	56	4	55	2	62	10
	2020	36	-10	57	-2	54	-3	51	-8	62	-1
	2021	37	3	59	3	57	4	53	5	64	4
	2022	39	6	70	18	61	7	63	18	72	12
	2023 (B. E.)	39	1	68	-3	68	13	64	2	78	8
Post-earthquake	Early Period	18	-55	51	-24	22	-68	20	-69	15	-80
	Late Period	40	128	76	48	64	196	61	209	79	415
	Entire Period	29	-25	64	-9	43	-29	41	-35	47	-34

Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

This shows that post-earthquake solidarity was effective not only in the earthquake-affected region but also in Türkiye as a whole. Studies show that the therapeutic effect is effective immediately after the earthquake and that crime rates return to their previous course in the following period (Prelog, 2016; Weber and Peek, 2012). The significant decrease in the early period and the significant increase in the late period are also seen in Graph 2. So, the findings of this study are in line with previous studies.

Graph 2: Crimes against life rate (per 100.000)



Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

3.3. Sexual Crimes

Although most of the studies examining criminal behavior after natural disasters are related to crimes against property, women and children are expected to be more vulnerable in an environment of social disorder. Therefore, since sexual offenses are mostly committed against women and children, various studies are showing that sexual offenses increase after natural disasters (Duramy, 2011). A meta-analysis by Thurston et al (2021) reveals that violence against women increases after natural disasters. While analyzing the data on violence against women, they included sexual harassment and rape crimes at this rate. On the other hand, there are examples where increased social solidarity has reduced crimes against women (Thurston et al., 2021). Zahran et al. (2009) examined the course of crimes including index crimes, crimes against property, and violent crimes after natural disasters, and found that only domestic violence crimes including sexual assaults increased.

When examining the rate of change in sexual crimes after the Kahramanmaraş earthquake, we see that in the early period, there is a decrease of 55% in the earthquake provinces compared to the previous year, while there is a decrease of 28% across Türkiye. When we look at the late period, we see that sexual crimes have increased significantly in earthquake-affected provinces (Table 8). Although there is an increase in sexual crimes in the late period, there is a general downward trend when compared to previous years.

Looking at the entire post-earthquake period, the decrease in sexual crime rates compared to 2022 is the same in terms of earthquake-affected provinces and Türkiye. This observation is in line with existing literature indicating that the earthquake has a reducing effect on sexual offenses. This situation seems to be valid not only for the earthquake zone but also for the whole country.

Table 8: Rate of sexual crimes and change in rates

		Earthquake Provinces			Türkiye		
		Sexual Crimes (N)	Rate	Change in Rate (%)	Sexual Crimes (N)	Rate	Change in Rate (%)
Pre-earthquake	2018	825	13		12.158	15	
	2019	857	14	3	12.167	15	-1
	2020	757	12	-13	10.754	13	-12
	2021	845	13	11	11.548	14	6
	2022	927	14	9	12.805	15	10
	2023 (B. E.)	846	14	-4	13.054	15	2
Post-earthquake	Early Period	377	6	-55	9.377	11	-28
	Late Period	786	13	109	9.713	11	4
	Entire Period	650	11	-26	9.545	11	-26

Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

When analyzed on a provincial basis, it is observed that there was a decrease of 60 percent or more in provinces other than Gaziantep. When analyzed on a provincial basis, it is observed that there was a decrease of 60 percent or more in provinces other than Gaziantep, which had the lowest damage level among the five provinces in the early period, and the decrease in Gaziantep was the same with Türkiye in general. However, in the late period, it could not maintain the same level as Türkiye in general, and an increase of 49 percent was observed. On the other hand, both the graph and the table show that the increase in the late period in other provinces is significant (Table 9, Graph 3).

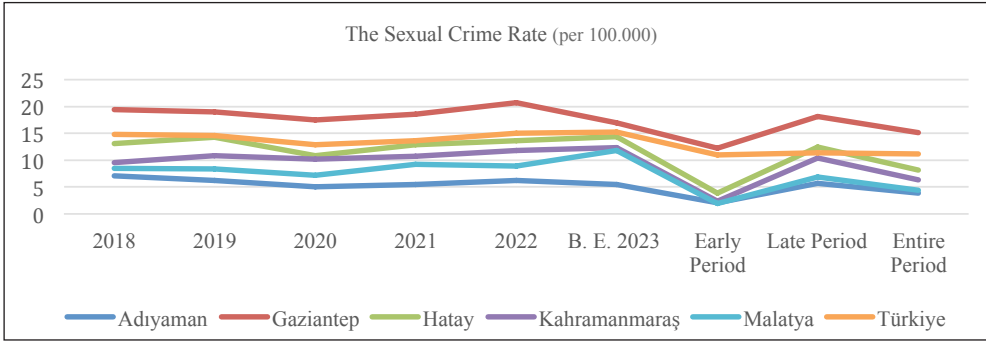
When the post-earthquake period is evaluated as a whole, i.e. in the late period, it is observed that sexual crimes decreased both in Türkiye as a whole and in all earthquake-affected provinces in total and separately.

Table 9: Rate of sexual crimes and changes in the rates by provinces

		Adıyaman		Gaziantep		Hatay		Kahramanmaraş		Malatya	
		Rate	Change (%)	Rate	Change (%)	Rate	Change (%)	Rate	Change (%)	Rate	Change (%)
Pre-earthquake	2018	7		19		13		10		9	
	2019	6	-12	19	-2	14	9	11	13	8	-2
	2020	5	-20	17	-8	11	-24	10	-5	7	-14
	2021	5	10	19	6	13	18	11	5	9	29
	2022	6	14	21	12	14	6	12	10	9	-4
	2023 (B. E.)	6	-12	17	-18	14	6	12	5	12	32
Post-earthquake	Early Period	2	-62	12	-28	4	-73	2	-81	2	-84
	Late Period	6	173	18	49	12	223	10	347	7	257
	Entire Period	4	-38	15	-27	8	-40	6	-46	4	-51

Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

Graph 3: Sexual crime rate (per 100.000)



Source: Ministry of Justice, General Directorate of Judicial Records and Statistics

Silverio-Murillo et al. (2021) found that sexual crime rates, which increased immediately after the earthquake, did not return to their previous levels in the late period while other crimes returned to their previous levels. The results of our study show the opposite of the findings reported by Silverio-Murillo. In other words, the changes in crime rates that occur immediately after the earthquake are expected to return to their pre-earthquake levels after a certain period.

Conclusion

Natural disasters such as earthquakes cause various social and economic disruptions in the social structure. Some of the studies on the reality of disaster myths, in which the belief that crime rates will increase due to the disruptions and problems arising after the disaster, reveal that there is not always a linear relationship between crime and natural disasters. Studies reveal that crime rates increase after disasters as well as studies showing that they decrease or remain constant. While the routine activity theory and social disorganization theory attempt to explain the rise in crime rates following disasters, the therapeutic community theory argues that crime rates may initially decrease in the immediate aftermath of a disaster due to the social solidarity driven by a collective desire to restore the pre-disaster social structure. When both these theories are combined, it might be concluded that, while crime rates initially decrease in the immediate aftermath of a disaster due to social solidarity, they rise as society enters the reconstruction phase, since the process of rebuilding the social structure during this time leads to turmoil increase and instability.

In the light of our present analysis, we concluded that crime rates changed in different periods and according to crime types after the Kahramanmaraş earthquake. The results indicate that in the early stages of disasters, there is a higher level of community spirit and solidarity, leading to a decrease in crime rates. This finding aligns with some previous studies. Both statistical and qualitative studies support this conclusion. This study's finding is consistent with the literature, which shows that property crime rates decreased in the early period after the earthquake. This phenomenon is attributed to a therapeutic community effect

in which common pain is tried to be overcome by solidarity. The desire to return to the pre-disaster order in affected regions strengthens social bonds. As a result, social control mechanisms are activated, and informal surveillance, along with the emerging sense of collectivity, contributes to a reduction in criminal behavior.

The crime rates increased in the late period in all provinces and all crime types due to job losses and business disruptions as people returned to normal life and routine activities. In the aftermath of a natural disaster, central nodes of activity, such as educational institutions, the home, and the workplace, may be forced to close temporarily or permanently. Such closures can have a severe impact on an individual's routine behavior, increasing the likelihood of criminal activity and victimization. Disruptions in routine activities lead to economic difficulties, which in turn result in an increase in criminal behavior. Therefore, the rise in property-related crimes, in particular, can be attributed to the influence of these economic problems.

Looking at the entire period, when compared to the data for 2022, there is a significant decrease in sexual offenses in all provinces, a slight decrease in property offenses, a decrease in crimes against life in all provinces when negligent crimes are not included, and an increase in provinces except Kahramanmaraş and Malatya when they are included. The largest increase is in Adıyaman, the second province that suffered the most from the earthquake.

In conclusion, while the observed decrease in crime rates in the early post-earthquake period can be attributed to the therapeutic community, the subsequent increase in crime rates can best be explained by the routine-activity theory as a late effect. Qualitative studies should determine the therapeutic effects of community and the dimensions of solidarity. This study highlights the necessity for new qualitative research to explore the topic further. Additionally, we recommend research to understand the level of fear of crime after the earthquake and the validity of the disaster myth in the context of the Kahramanmaraş earthquake.

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