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**Ömer Bilen
Öyküm Esra Aşkın
Ali Hakan Büyüklü
Ayşenur Ökten
Mehmet Gür**

Yıldız Technical University, Istanbul-Turkey
obilen@yildiz.edu.tr; oeyigit@yildiz.edu.tr;
hbuyuklu@yildiz.edu.tr; okten.aysenur@gmail.com; gur@yildiz.edu.tr

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HOW THE FEAR OF CRIME SPATIALLY DIFFERS AMONG THE DISTRICTS OF ISTANBUL?

ABSTRACT

Istanbul is one of the most influenced cities from the process of rapidly increasing urbanization since 1950s. The rapid population growth has brought a number of urbanization problems such as crime and fear of crime. Specially, fear of crime (FOC) affects the citizens' quality of life, negatively [1]. Therefore, fear of crime is an important social problem that should be investigated extensively. The purpose of this study is to map the citizens' fear of crime in Istanbul using GIS. With the face to face survey methodology, results of four questions answered by 1,837 responders were used as a measure of fear of crime. Results showed that individuals feel themselves safe during daytime both in neighborhoods and home. Similarly, they never feel themselves unsafe after dark. Istanbul has the image of being an unsafe city. However, the results are in contrast with this general opinion.

Keywords: Mapping, Fear of crime, Istanbul, GIS,
Spatial Distribution

SUÇ KORKUSU, İSTANBUL İLÇELERİNDE ARASINDA MEKÂNSAL AÇIDAN NASIL FARKLILAŞIR?

ÖZET

1950'lerden itibaren hızla artan kentleşme sürecinden en çok etkilenen şehirlerden biri İstanbul metropolüdür. Hızla artan nüfus, suç ve suçun neden olduğu suç korkusu gibi birtakım kentleşme sorunlarını beraberinde getirmektedir. Özellikle suç korkusu, vatandaşların yaşam kalitesini negatif yönde etkilemektedir. Bu nedenle suç korkusu kavramı, kapsamlı incelenmesi gereken önemli sosyal bir problemdir. Bu çalışmanın temel amacı, İstanbul'da yaşayan vatandaşların suç korkusunu CBS kullanarak haritalamaktır. Yüz yüze anket yöntemi kullanılarak, 1,837 adet denek tarafından cevaplanan dört soruya ait sonuçlar, suç korkusunun ölçülmesinde kullanılmıştır. Kişilerin kendilerini hem mahallelerinde hem de evlerinde gündüz zamanı güvende hissettikleri bulunmuşken, gece vakti kendilerini hiçbir zaman güvensiz hissetmemektedirler. İstanbul, güvensiz bir şehir olduğu imajına sahiptir ancak sonuçlar bu genel görüş ile çelişmektedir.

Anahtar Kelimeler: Haritalama, Suç Korkusu, İstanbul, CBS,
Mekânsal Dağılım



1. INTRODUCTION (GİRİŞ)

As a research area, fear of crime studies first began to be examined in the mid-1960s and now, it is one of the most important research topics for criminology literature [2]. A lot of studies from different social and political perspectives have investigated the fear of crime [3]. Research about this topic is mostly done in developed western countries such as the United States and Australia [4] and in European countries such as Belgium, Finland and Italy [5]. Unfortunately, studies in Turkish context (such as [5, 6, 7, 8 and 9]) are limited. Therefore, studies need to be done for our country to cope with the fear of crime which affects the individual's life quality [7].

Several definitions for fear of crime exist in the literature but a precise definition is an ongoing debate issue. Ferraro (1995) defined fear of crime as "an emotional response of dread or anxiety to crime or symbols that a person associates with crime" [10]. The term of fear to crime is usually refers to the individual's fear of becoming a victim of crime [11] and numerous studies indicated that a large proportion of citizens across the world fear about becoming a crime victim [12]. Fear of crime affects the community not only materially and physically, but also psychologically (such as insecurity/ depression) and its consequences are greater than the material damage of the crime itself [7].

Usually there is no linear relationship between fear of crime and the crime level - in other words, individuals think that reported crimes are less than the ones that actually happened and they may feel unsafe even if they live in a safe area [13]. In the early 1980s, fear of crime was not a significant issue for the law enforcement agencies [14; 15] and the main priority was dealing with decreasing victimization [16]. Through the community policing services, it can be seen that individuals' fear of crime decreases meaningfully. Also, as the interaction between the police and community rises, levels of satisfaction with the police increase [17]. Therefore, individuals' fear of crime level can be a measure for the effectiveness of the law enforcement agencies [7]. Thus, measuring citizens' fear of crime and identifying significant factors related with fear of crime help to evaluate and then improve the quality of police services.

1.1. Effects of Fear of Crime (Suç Korkusunun Etkileri)

Fear is a natural response to crime [18] and today, it has become a normal part of urban life [19]. As it is mentioned before, fear of crime negatively affects the individual's life quality psychologically, behaviorally and physically. At the psychological level, individuals become anxious, unsafe, dissatisfied with life [20], distrustful of others or the police [21] and alienated [2]. When investigating the behavioral effect, fear of crime imposes individuals to take some crime prevention measures such as carrying guns, using special doors and extra locks, buying home security systems and burglar alarms, protecting with doorman, acquiring watchdogs and learning self-defense techniques in order to feel safer [2, 21, 22 and 23]. Regarding the physical effects, many researchers have reported that fear of crime could cause health problems [24]. Dolan and Peasgood (2006) stated that fear of crime effects the individual's physical and mental health, indirectly. Also, fear of crime may break psychological health which affects individual's physical and mental health [25]. Also, individual's worry and anxiety cause feeling insecure when they are outside. Therefore, the restricted outdoor activities such as staying at home, limiting daily behaviors and avoiding unsafe areas lead to increasing social isolation [24, 25, 26,



27, 28 and 29]. Thus, reduced physical activity correlates with poorer physical and mental health (depression and long term trauma) [30 and 31]. In this sense, fear of crime is an important social problem that should be investigated extensively in every respect.

1.2. Mapping the Fear of Crime (Suç Korkusunun Haritalanması)

One of the most important studies related with the spatial mapping of fear of crime was done by William. His survey included 309 households in the selected eight streets in Abbey Ward, London and he used MapInfo. The aim of that study tended to be around one of two themes (1) spatially, e.g. where fear was most prevalent and (2) thematically, e.g. how an area felt about different crime types (such as burglary, drugs, robbery and car crimes) [32]. His street-by-street map did not only show the levels of fear, but it also illustrated the specific fears of responders. Outcomes of the study were provided to the neighborhood-level officers in order to be used in community policing activities [14].

With the help of the Arc View GIS system, Doran and Lees (2005) investigated the relationships between crime, physical disorder (such as empty beer bottles in street, various types of graffiti, existence of homeless people and abandoned/boarded up houses) and fear from a spatiotemporal viewpoint. Wollongong city in Australia was chosen as a survey site and the purpose of the study was to draw an avoidance map for the different time scales. Fear of being robbed, beaten or attacked during and after work hours was asked to 234 working people. Regarding the results, people's fear of crime level and space concentrations of disorder changed over time. The most determinative type of physical disorder was found to be the graffiti [33].

Another study for the citizens of Wollongong city was done by Australian geographers Doran and Burgess [2]. They used GIS behavioral geography techniques and analyzed place-based information of fear of crime [34].

McCrea et al.'s survey included 140 citizens living in Brisbane City and they aimed to find factors in predicting fear of crime. Possible factors that could influence the fear of crime were selected as the followings: (1) demographic characteristics such as age and gender (2) Neighborhood disorder such as vandalism and cleanliness of the neighborhood (3) social processes such as involvement, friendliness, and sense of community (4) neighborhood structure such as social/economic status, urbanization, population turnover and ethnic heterogeneity. Fear of crime which is a dependent variable was measured by asking "How safe do you feel when you are walking alone in your neighborhood after dark?". They found that gender was the first and neighborhood disorder was the second predictors of fear of crime. Maps created using GIS system showed the spatial distribution of fear of crime for Brisbane City and fear of crime distribution according to citizens' socio-economic status [35].

Lastly, Pain et al. (2006) used GIS in order to find effects of improved street lighting on crime and citizens' fear in Northumberland, England. One of the most important findings of the study was that lighting reduced the citizens' fear of crime [36].

2. RESEARCH SIGNIFICANCE (ÇALIŞMANIN ÖNEMİ)

It is known that physical growth of urban areas affects the urban centers [37]. Istanbul is the most crowded city in Turkey with a population of nearly 14 million people and it continues to grow rapidly. Since 1950, many problems have been raised by rapid urbanization such as crime and fear of crime. Mentioned problems, particularly fear of crime, influence the individual's life quality.



In this case, the spatial distribution of citizens' social, economic, cultural and behavioral characteristics is an important key point to reduce the fear of crime. That's why, more studies especially fear of crime mapping are needed to be done besides understanding fear of crime and mapping the crime. Williams (2007) pointed out that a lot of research has been done on understanding the fear of crime, whereas limited studies is seen on the topic of fear of crime mapping [32]. This study attempts to fill this gap through drawing a map which illustrates the fear of crime level for Istanbul citizens. This is the first fear of crime mapping study for Istanbul metropolitan area.

3. METHODOLOGY (METODOLOJİ)

To measure Istanbul citizens' fear of crime; a face to face survey, which is a quantitative evaluation methodology, was used. In this questionnaire, the following four questions were asked to the responders [38];

- How safe do you feel when you are walking alone in your neighborhood during daytime?
- How safe do you feel when you are walking alone in your neighborhood after dark?
- How safe do you feel when you are at home during daytime?
- How safe do you feel when you are at home at night?

The responders rated the frequency of their senses of safety on a five-point likert scale, ranging from "very unsafe" to "very safe".

The sample of the survey was determined in order to reflect the urban areas of Istanbul metropolitan area. The population size was 3,950,168 households and the size of the sample was calculated as 1,837 (for $\pm 2.29\%$ tolerance interval at 95% confidence level). Some definitions of the sampling procedure used in this study were given in Table 1.

The frame was stratified into 12 normally distributed strata according to the neighborhoods' crime rate. The first six strata were classified as a lower crime rate and consisted of neighborhoods of 35 districts such as Esenyurt, Catalca, Bahcelievler, Bagcilar, Zeytinburnu, Sultangazi, Sultanbeyli, Sile, Sancaktepe, Cekmekoy, Esenler and Arnavutkoy. The second six strata were classified as a higher crime rate and consisted of neighborhoods of 39 districts. Some of the mentioned districts having a higher crime rate were the following: Fatih, Kadikoy, Uskudar, Besiktas, Kartal, Umraniye, Maltepe, Sariyer, Sisli and Beyoglu. It was seen that neighborhoods with high and low crime levels were situated in particular districts. However, in general, a dichotomy exists in the distribution of the neighborhoods having high and low crime levels.

Table 1. Descriptions of the sampling Procedure used in the study
(Tablo 1. Çalışmada kullanılan örnekleme prosedürü ile ilgili tanımlamalar)

Procedure	Description
Population	Individuals aged over 15 years-old living in Istanbul
Sampling Methods	Stratified two-stage cluster sampling
Sampling Frame	Streets which exist in the sampling frame
Sampling Unit	Households aged over 15 years-old living in the determined streets

In order to measure fear of crime, four questions given above were asked to the responders. To map individuals' fear of crime level based on districts, following steps were applied respectively:



- *STEP 1*: The average score for each question was calculated (this method was applied for each stratum)
- *STEP 2*: How many people lived in each stratum was known. The average score calculated for stratum was weighted by the population number of the related stratum. Thus, fear of crime scores were obtained for all the districts.
- *STEP 3*: Obtained scores were separated into 5 groups according to formula of $(\text{max}-\text{min})/5$. These groups were named, in an order from the highest fear of crime level to the lowest one, as "1st level safety", "2nd level safety", "3rd level safety", "4th level safety" and "5th level safety". This type of classification showed the relative degrees of fear of crime in Istanbul metropolitan area.
- *STEP 4*: To determine the degree of real confidence level, calculated average scores for Istanbul and its districts were classified in accordance with the following legends;
 - (1.00-1.79): "very unsafe"
 - (1.80-2.59): "safe"
 - (2.60-3.39): "neither safe nor unsafe"
 - (3.40-4.19): "safe"
 - (4.20-5.00): "very safe"

4. FINDINGS (BULGULAR)

In this part of the study, results of each question answered by the responders were given.

4.1. Fear of Crime in the Neighborhood During Daytime (Gün İçinde Mahalledeki Suç Korkusu)

For Istanbul metropolitan area, fear of crime score in the neighborhood during daytime was found to be 3.48. This result showed that the individuals living in Istanbul felt "safe" in their neighborhood during daytime. The districts with the first three highest scores were Maltepe (3.75-"safe"), Kadikoy (3.68-"safe") and Umraniye (3.65-"safe"), respectively. The districts with the first three lowest scores were Avcılar (3.30-"neither safe nor unsafe"), Bahçelievler (3.30-"neither safe nor unsafe") and Pendik (3.32-"neither safe nor unsafe"), respectively.

The district-based results showed that while 26.3% of the individuals living in the districts felt themselves at "the 1st level safety" or at "the 2nd level safety" in the neighborhood during daytime, 10.6% of the people living in districts felt themselves at "the 4th level safety" or at "the 5th level safety". Figure 1 shows the district-based spatial distributions of fear of crime level in the neighborhoods during daytime. It was seen that the districts which were located in the northern and the eastern Anatolian side had the highest fear of crime level. However, the individuals living in the middle section of the European side of Istanbul felt at "the 1st level safety" in their neighborhoods during daytime.

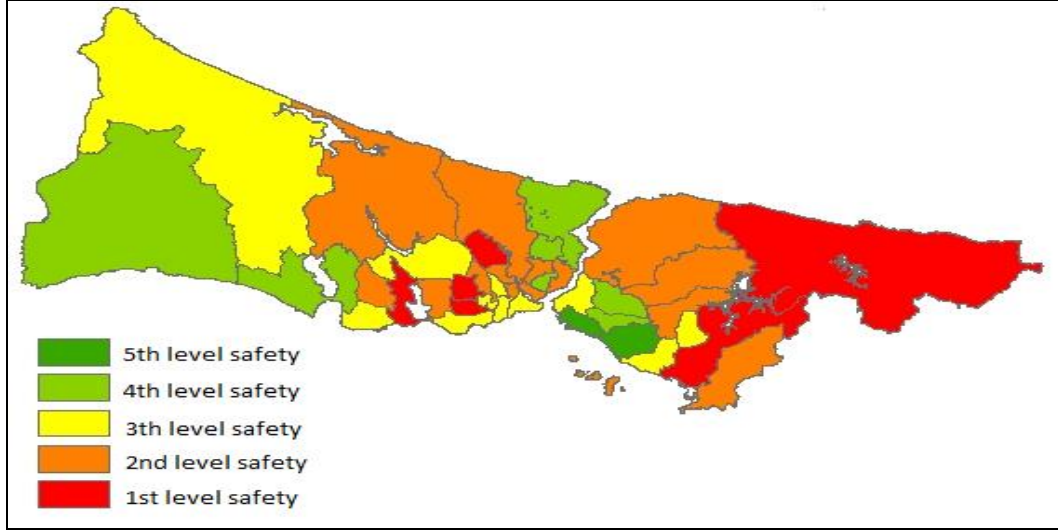


Figure 1. Spatial distributions of fear of crime in the neighborhood during daytime
(Şekil 1. Gün içinde mahalledeki suç korkusunun mekânsal dağılımı)

4.2. Fear of Crime in the Neighborhood After Dark (Gece Vakti Mahalledeki Suç Korkusu)

Fear of crime score in the neighborhood after dark was found to be 2.87. In other words, the individuals living in Istanbul felt "neither safe nor unsafe" in their neighborhood after dark. The districts with the first three highest scores were Maltepe (3.21-"neither safe nor unsafe"), Kadikoy (3.14-"neither safe nor unsafe") and Umraniye (3.05-"neither safe nor unsafe"), respectively. The districts with the first three lowest scores were Avcılar (2.61-"neither safe nor unsafe"), Pendik (2.67-"neither safe nor unsafe") and Sultangazi (2.71-"neither safe nor unsafe"), respectively.

The district-based results showed that while 22.3% of the people living in the districts felt themselves at "the 1st level safety" or at "the 2nd level safety" in the neighborhood after dark, 11.7% of the people living in the districts felt themselves at "the 4th level safety" or at "the 5th level safety". Figure 2 shows the district-based spatial distributions of fear of crime level in the neighborhoods after dark. It can be seen that the individuals who lived in the northern and the east of the Anatolian side felt themselves at "the 1st level safety" in the neighborhood after dark. However, the fear of crime level was the highest in the middle and the southwest section of the European side of Istanbul, relatively.

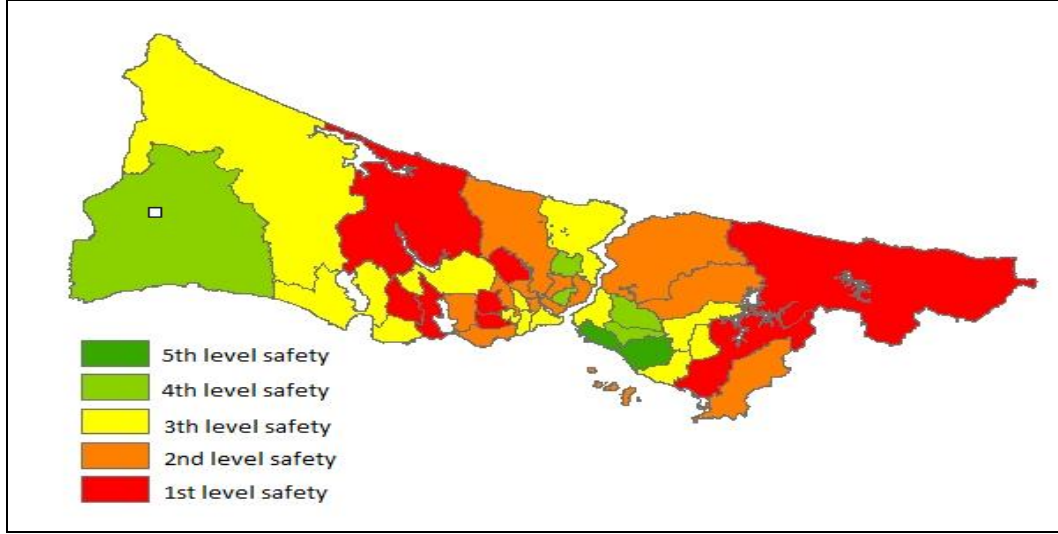


Figure 2. Spatial distributions of fear of crime in the neighborhood after dark

(Şekil 2. Gece vakti mahalledeki suç korkusunun mekânsal dağılımı)

4.3. Fear of Crime at Home during Daytime (Gün İçinde Evdeki Suç Korkusu)

Fear of crime score at home during daytime was found to be 3.63. This result showed that the individuals living in Istanbul felt "safe" at their home during daytime. The districts with the first three highest scores were Maltepe (3.84-"safe"), Umraniye (3.77-"safe") and Kadikoy (3.75-"safe"), respectively. The districts with the first three lowest scores were Pendik (3.48-"safe"), Avcılar (3.49-"safe") and Adalar (3.53-"safe"), respectively.

Results showed that while 23.9% of the people living in the districts felt themselves at "the 1st level safety" or at "the 2nd level safety" at home during daytime, 8.4% of the people living in the districts felt themselves at "the 4th level safety" or at "the 5th level safety". Figure 3 shows the district-based spatial distributions of fear of crime level at home during daytime. It can be seen that fear of crime levels were relatively higher in the east of the Anatolian side. However, fear of crime score in the middle and the southwest section of the European side of Istanbul was the highest.

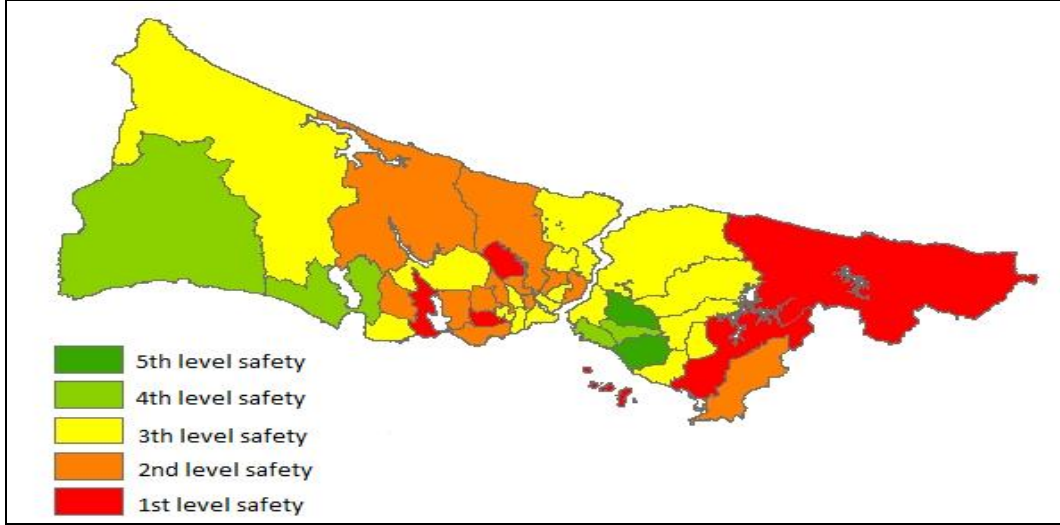


Figure 3. Spatial distributions of fear of crime at home during daytime

(Şekil 3. Gün içinde evdeki suç korkusunun mekânsal dağılımı)

4.4. Fear of Crime at Home after Dark (Gece Vakti Evdeki Suç Korkusu)

Lastly, fear of crime score at home after dark was found to be 3.30 for Istanbul area. The individuals living in Istanbul felt "neither safe nor unsafe" at their home after dark. The districts with the first three highest scores were Maltepe (3.55-"safe"), Kadikoy (3.48-"safe") and Silivri (3.46-"safe"), respectively. The districts with the first three lowest scores were Pendik (3.13-"neither safe nor unsafe"), Avcilar (3.14-"neither safe nor unsafe") and Bağcılar (3.15-"neither safe nor unsafe"), respectively.

Results showed that 26.3% of the people living in the districts felt themselves at "the 1st level safety" or at "the 2nd level safety" at home after dark, whereas %9.1 of the people felt at "the 4th level safety" or at "the 5th level safety". Figure 4 shows the district-based spatial distributions of fear of crime level at home during daytime. When the figure is examined, it can be seen that fear of crime levels were relatively higher in the eastern and the northern parts of the Anatolian side. However, the fear of crime level was the highest in the middle and the southwest section of the European side of Istanbul, relatively.

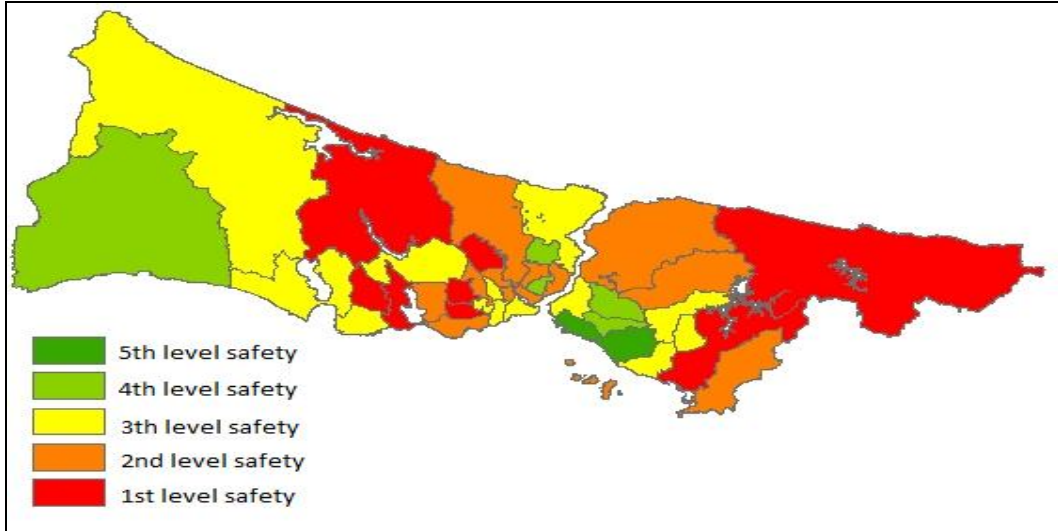


Figure 4. Spatial distributions of fear of crime at home after dark
(Şekil 4. Gece vakti evdeki suç korkusunun mekânsal dağılımı)

5. CONCLUSION AND RECOMMENDATIONS (SONUÇ VE ÖNERİLER)

In this study, Istanbul citizens' fear of crime was measured by four questions and how it changed among districts were shown by four different maps. It was found that both in the neighborhoods and at home, the individuals living in Istanbul feel themselves "very safe" or "safe" during daytime. This is an expected result for researchers. It was seen that fear of crime level increased after dark, but not considerably. In general, fear of crime scores in neighborhood/home were not found to be below 2.6. In other words, the individuals living in Istanbul never feel themselves "unsafe" or "very unsafe" in their neighborhood or at their home after dark.

Furthermore, fear of crime was found lower in the districts which have a higher socioeconomic level and which were concentrated around housing areas. Also, central districts developing with the city plans had lower fear of crime level.

Using fear of crime maps, spatial differences between perceptions of security must be investigated by public institutions and organizations and the necessary measures should be taken. In this study, fear of crime in Istanbul was investigated spatially. Future studies will be extended by focusing on factors that affect the spatial distribution of fear of crime. In this way, density of specific fears for each district could be illustrated by a map. Also, which crime prevention measures are more likely to work while reducing the fear of crime of citizens will be investigated.

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