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THE EFFECT OF FEAR OF CRIME ON PUBLIC SPACE USE: THE CASE OF RÜSUMAT

*İsra Nur Alkan*¹ , Graduate School of Istanbul Technical University, Istanbul, Turkey

Elif Kutay Karaçor , Department of Landscape Architecture, Faculty of Architecture, Istanbul Technical University, Istanbul, Turkey

Abstract:

The growing populations of today's cities, as well as the increase in alienation amongst their inhabitants, raises the perception of crime. People's desire for communal areas such as public spaces is reduced when they feel unsafe in urban places. This condition leads to social and political issues, such as a decline in democratic demands, tolerance, and empathy, and an increase in the broadness of the activity amongst criminal groups. It is vital to identify the variables that contribute to crime perception and to provide spatial suggestions to improve the use of public space. The aim of this study is to assess the perception of three different types of crime in various public spaces and to learn the causes for these differences using Rüsumat beach as an example. As a result, it is hoped that strategies will be developed that improve the utilization of public space in Rüsumat. The perception of crime in Rüsumat was quantified using cognitive maps, and the data was analyzed using ArcGIS. Spatial recommendations were created according to the results.

Key words: crime, perception, cognitive mapping, public space, hotspot analysis.

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¹ Taşkışla Campus 34437, Beyoğlu, İstanbul, Turkey
israalkan@gmail.com

1. INTRODUCTION

Changes in space utilization have resulted from the transformation of public spaces since their emergence. Everyone's unrestricted use of public spaces is idealized. However, for user groups to experience public spaces, they must first have a positive experience of the space, and the space itself must have attractive design elements. According to Byun and Ha (2023), public spaces such as pedestrian areas and parks have a significant potential for crime perception, since there is no information about the criminal history or identity of the people encountered in these places. The perception of a "high level of safety" may be associated with public spaces that satisfy multiple design quality criteria, which will be discussed later. When a public space is perceived to be safe, the frequency and duration of visits increase, and it is therefore visible as to whether a public space meets expectations. Public spaces devoid of fear of crime are more appealing to their users and are more motivating for enhancing their social lives. Uncontrolled construction, population growth, administrative deficiencies, and uncontrolled communities and spaces diminish the perception of safety. Consequently, people perceive crime as a direct or indirect factor in the utilization of public spaces. Designs implemented in the city without consideration of the social structure and culture, as well as crimes committed against the city (damage to equipment in public spaces, destructive use of provided services, etc.), increase the fear of crime over time, and reduce the use of public space, resulting in a negative effect (Ferraro, 1995). This fear, which disrupts the functioning of urban life, has a direct and deleterious impact on the quality of life of individuals and may even contribute to the emergence of crime.

Since the 1960s, urban scientists have been analyzing how the built environment affects both crime perception and crime generation. By improving the built environment, Crime Prevention through Environmental Design seeks to establish safe communities (Jacobs, 2016; Lynch, 1964; Su *et al.*, 2023). Jacobs (2016) mentioned that the liveliness of streets and public spaces and the diversity of their use have a direct impact on the fear of crime. In addition, other deficiencies in places where the fear of crime is intensely felt include the dense presence of trees and bushes, and a decrease in visibility. Ewing and Handy (2009) emphasize the importance of the concept of visibility (transparency), stating that it has an important place in the quality of urban design. Ulrich (1986) determined that a high density of natural vegetation reduces the perception of safety. Heinze *et al.* (2018) found that the greater the presence of greenery and closeness to nature, the greater the relaxation that individuals will feel. In this regard, it is thought that the differences in the literature may vary according to plant material size and features. In addition, the relationship between plant material and other spatial features (lighting, maintenance, etc.) could potentially affect the results. For example; If a dense planting design is applied in a particular place, the fear of crime can be reduced by supporting it with lighting elements of different sizes. Similarly, regularly pruning plants reduces the fear of crime. According to Rezvani and Sadra (2017), elements such as vandalism and negligence also have a direct correlation with the fear of crime.

The term "crime" encompasses a variety of distinct crimes, each of which carries specific legal penalties. There are numerous classifications of crime varieties, according to research (Aytaç *et al.*, 2007; Goodman and Brenner, 2002). The classification created in this study was

based on previous studies, and it was determined that they can be categorized under three distinct categories within the context of public use and human freedom (Figure 1).

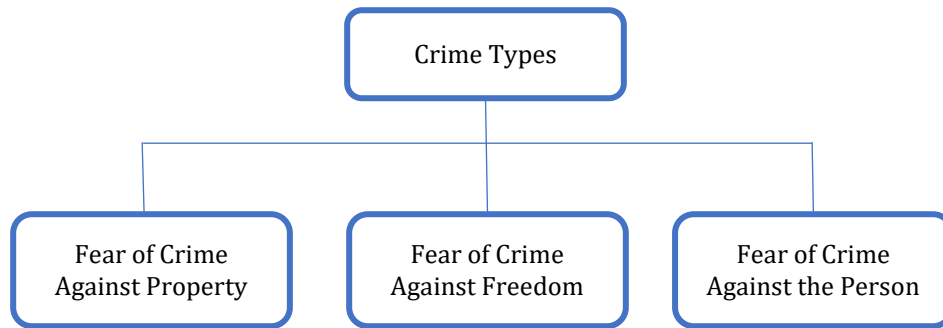


Figure 1. The classification of crime types.
(Source: Authors, 2020)

Crimes against property include crimes such as fraud, vandalism, theft, extortion, property damage, plundering, and violation of trust. An examination of the literature shows that this group of criminals commits the most offenses in public spaces. In his study, Güneş (2007) found that graffiti or vandalism practices in the city are subject to legal provisions for property damage, and they increase the fear of crime. According to Aytaç *et al.* (2007), economic factors are at the core of crimes against property.

Crimes against freedom can be characterized as insults, blackmail, threats, interference with freedom of belief/thought and opinion, interference with communication, and so forth. When other types of crime are considered, it has been concluded that the likelihood of committing these crimes in public places is lower (Ministry of Justice of Turkey, 2019). Based on certain legal norms and definitions, freedom crimes, despite being categorized under person crimes, are recognized as a distinct form of criminal activity within the scope of this research.

Crimes against the person include purposeful homicide, assault against the person, verbal abuse, harassment, and so on. According to Öztürk (2018), crimes against the person are just as serious as crimes against property. The existence of many sorts of crime reflects people's fear in social situations. People desire to believe they are safe in order to avoid feeling fearful. Crime and fear appear to be two concepts that feed off each other in this regard.

Fear of crime, in its broadest sense, is defined by Sipahi (2022) as "fear of becoming a victim of a crime." It is stated, however, that fear of crime is multidimensional and develops as an affective, behavioral, and cognitive response to a perceived crime threat. People must first notice this threat and interpret it as harmful around them in order to build powerful reactions to crime (Hart *et al.*, 2022).

The aim of this study is to investigate the fear of crime in public spaces, as well as the reasons for it, and to disclose the differences between the usage of several public spaces. Well-designed public spaces are locations where people feel comfortable and connect with one other and their surroundings, forming the foundation for socializing and increasing social cohesion. In this regard, the physical and social characteristics of the study area were analyzed to determine how people's perceptions influence the utilization of it.

2. MATERIALS AND METHOD

Rüsumat, a seaside area in the Altınordu district of Ordu Province, was selected as our case study (Figure 2). The region is about 31,000 square meters in size, it is heavily forested, and connected to the city center via a number of routes. It was redesigned and renewed in 2017, since it did not satisfy the community's needs (İtez, 2019). In addition to two-way bike lanes and running routes, the final project includes several areas for seating and recreational purposes, a children's playground, an exhibition area, promenades, and staircase seating areas. Three cafes, a wedding hall, and a car parking lot are used by those who want to spend longer there. Bringing in uses that will attract the local people, and improve maintenance, can be considered as important factors in reducing the fear of crime and increasing the use of the area.

An analysis of Rüsumat showed that it is designed for gatherings and events. It has seating elements, lighting elements, vegetative material, dustbins, sculptures, and covered spatial elements. Another issue that was effective in the selection of the area is that it is the most recently designed (renovated) area in the province.

Another reason for selecting Rüsumat is that it has a history of femicide (Yetkin, 2023), and it is believed that the incidence has enhanced the locals' fear of crime. Also, there has been a significant decline in the use of this space in recent years.

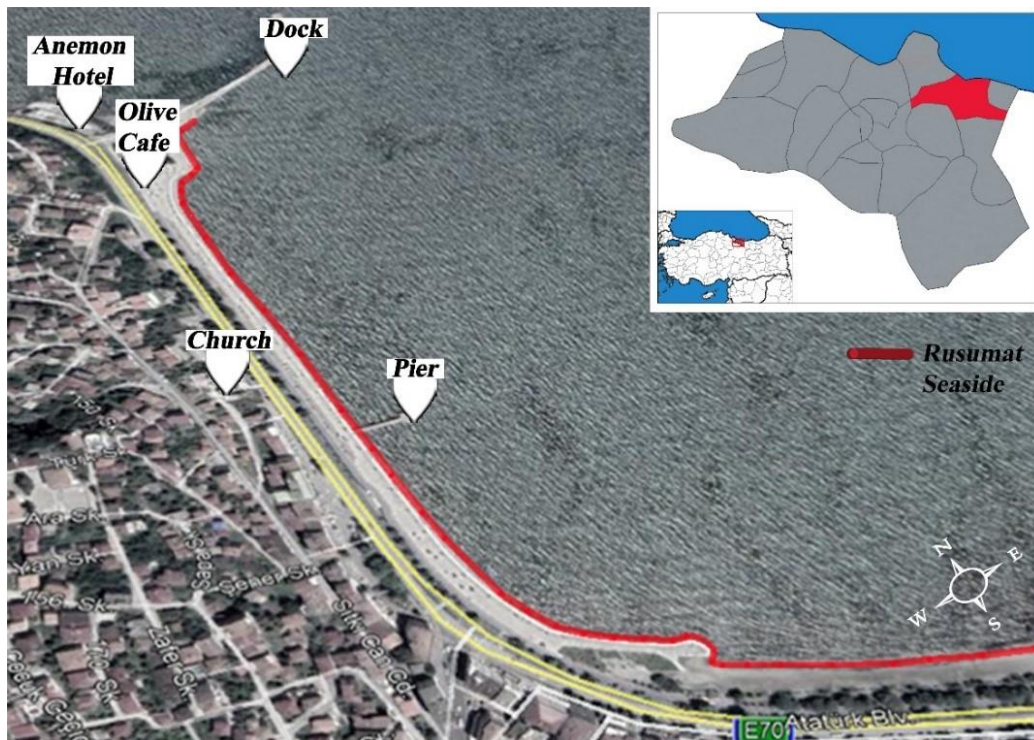


Figure 2. Rüsumat Seaside and some important landmarks
(Source: Authors, 2020)

The study relies on two connected concepts. These concepts are 'fear of crime' and 'use of public space'. To assess the relationship between these two concepts, the research area was examined within the framework of both social and physical contexts. The study started by

examining the impact of individuals' fear of crime on their utilization of public spaces, within the existing conceptual framework.

Spatial issues can effectively direct behavior (avoiding certain locations, taking precautions with a sense of anxiety, etc.) in the perceived space. The objective of this study was to uncover the spatial impact of individuals' behavioral approaches. In this context, Google Earth was used to create a map of the research area for the cognitive mapping technique, in which three maps were allocated to each person. They were instructed to indicate on the first map: "At what points do you fear crime against property?" and on the second map: "At what points do you fear crime against freedom?" The question for the third map was: "At what points do you fear crime against the person?". Ideally, cognitive mapping studies are applied to a minimum of 10 people due to the difficulty of application (Bakhshianlamouki *et al.*, 2023; Imani and Tabaeian, 2012; Watson *et al.*, 2023). Considering possible difficulties, cognitive mapping in this study was limited to 30 people. The primary criterion for selecting participants for cognitive mapping was based on their past experience, specifically those who have visited the study area. All participants were at least 18 years of age, with equal gender representation. The Google Earth images maps underwent initial processing using Geographical Information System (GIS) 10.7 software, employing a pointwise approach. Then, by applying an optimized hotspot analysis using spatial statistics tools to the processed maps, it was determined where fear of crime was the highest. The rationale behind using optimal hotspot analysis for this study was its ability to visually depict the geographical distribution and concentration of point features, as demonstrated by Pain *et al.* (2006). The analytical approach employed involves the generation of a distribution referred to as neighbor distance, based on density. This method entails selecting a location on the map, which subsequently determines the closest points and enhances the scale of study (Environment Systems Research Institute, 2020). The grid system generated allocated distinct colors to specific places characterized by a heightened concern for potential exposure to criminal activities (Wang *et al.*, 2013). Another rationale for using this tool was its versatility across many crime categories, as well as its alignment with theories elucidating the genesis of criminal behavior (Eck *et al.*, 2005). In addition, as part of the research endeavor, a total of 270 individuals were engaged in verbal interviews. These interviews aimed to gather insights on potential spatial interventions that could enhance the safety of Rūsumat. The participants were asked the following question: "What measures would you suggest implementing to improve the safety of the Rūsumat Seaside in terms of spatial considerations?". Following the inquiry posed to the participants, the responses received were subjected to analysis using MAXQDA 2020. Based on the responses, a word cloud analysis was conducted, and afterwards, several physical recommendations were developed.

3. RESULTS

With the data obtained in line with cognitive mapping, three different crime fear maps (against property, against freedom, against the person) were created. By overlapping the created maps, a single map was revealed in GIS showing the general level of fear of crime. The maps were developed by perceptual measurement of which crime individuals could be exposed to at which points in the study area. In line with this measurement, the program created a grid system with its own statistical analysis. This system ignores markings with less than 3 points in order to extract the density of point markings. The fear of crime against

property in public spaces in line with the surveys is shown in Figure 3. When the intensity of the grid system is measured as a result of the analysis, the fear of crime against property is higher than other types of crime. According to Figure 3, it is apparent that this type of crime does not exhibit a distinct pattern in relation to spatial activity, largely due to the high crime density and its widespread distribution throughout the area.



*Figure 3. Fear of crime against property
(Source: Authors, 2020)*

Grid density produced by hotspot analysis reveals that the fear of crime was felt least in terms of freedom (Figure 4). The areas where the fear crime is felt can be listed as hidden parts of the pier, covered seating areas and places where there is graffiti. The fear of crime against freedom is felt more strongly in children's playgrounds, because children are considered more vulnerable.



Figure 4. Fear of crime against freedom
(Source: Authors, 2020)

It was determined that the fear of crime against the person had a higher sense of anxiety compared to the intensity of the other analyses. This issue is believed to result from the fact that crimes against people include things like verbal abuse and harassment. Furthermore, as Figure 5 illustrates, the historical experience of a woman's murder close to the study area is probably going to affect how users see the location. The fact that this fear diffuses over the whole area – including the cafe, pier, exhibition areas, and children's playground – is highly significant. Figure 5 shows how different spatial uses correspond to different levels of concern related to possible exposure to criminal activity. The fear is noticeably increased in the pier area, but it is less noticeable at the children's playground. Additionally, there is insufficient lighting in places where there is a high level of criminal fear.



Figure 5. Fear of crime against the person
(Source: Authors, 2020)

In line with the analysis, the data collected for crime against property, freedom and the person were overlapped and a common fear of crime map was obtained for the study area (Figure 6). When we look at the general fear of crime map, it is observed that the program evaluates each point mark because the point marking density is high. Even though the maps have common points, each map gave different results from each other. However, for some uses of the space, all fear of crime types were felt among the users (Figures 3, 4, and 5). These uses are listed as the dock and pier, the exhibition area, the children's playground, and the sitting area.



Figure 6. Overall average fear of crime
(Source: Authors, 2020)

As a result of the analysis, the spatial characteristics of the points where the fear of crime is not seen were examined. It was determined that the fear of crime is not felt at the points where the environmental relationship is the highest (use of the pedestrian crossing, cafe and wedding hall) in Rüsamat. The environmental relationship is shown in Figure 7. According to the same results, it was observed that there are spatial deficiencies at the points where the fear of crime is high.

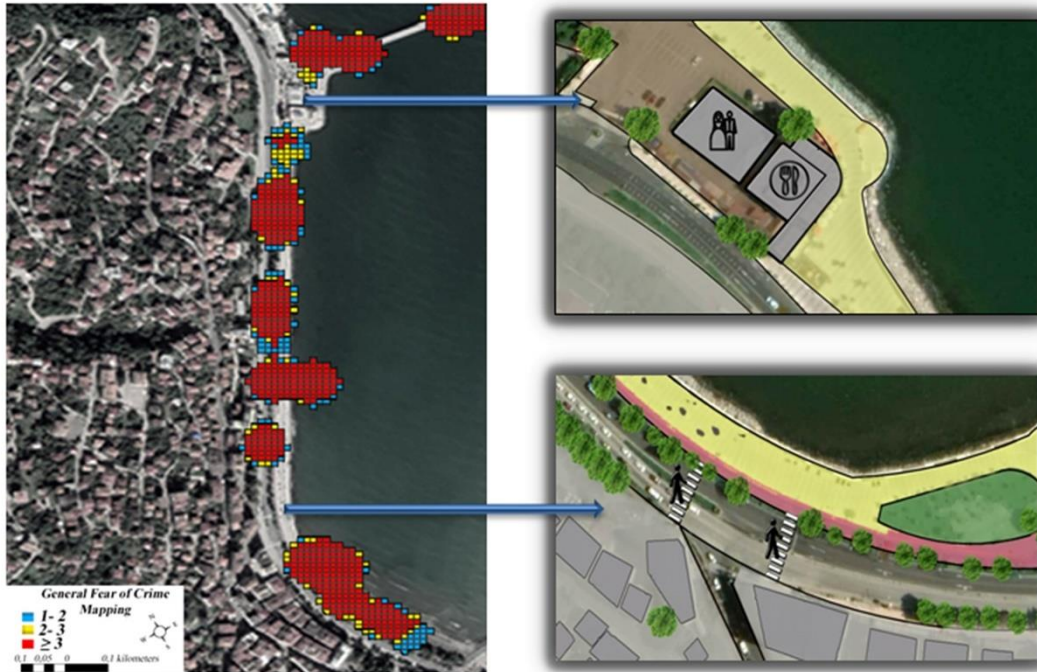


Figure 7. The spatial characteristics of places where there is no fear of crime
 (Source: Authors, 2020)

In line with the interviews conducted within the scope of the research, the question “What spatial measures would you recommend to be taken to make the Rüşumat Seaside safer?” was directed to people who are familiar with the Rüşumat study area. The answers received in response to this question were entered into the MAXQDA 2020 program, where the coding technique is used. With the coded words, the spatial measures that people need most were revealed. These measures were visualized by word cloud analysis (Figure 8).



Figure 8. Word cloud analysis based on spatial measures.
 (Source: Authors, 2020)

According to word cloud analysis, the most needed spatial measure in the study area is lighting. Increasing the lighting elements is a fundamental expectation of visitors, as well as security forces and plainclothes police patrolling the area. Some of the interviewees also expressed their concern about their safety with reference to other nationalities present in the area (expressed as immigrants).

4. DISCUSSION

It is thought that the lack of lighting in the quay and pier areas (Figure 2) and the fact they are not used by everyone 24/7 increases the fear of crime. Similarly, Jacobs (2016) mentions that the liveliness of streets and public spaces and the diversity of their use have a direct impact on the fear of crime. In addition, it is thought that other deficiencies in places where the fear of crime is intensely felt are due to the dense presence of trees and bushes and the decrease in visibility. Ewing and Handy (2009) emphasize the importance of the concept of visibility (transparency) in their study and mention that it has an important place in the quality of urban design. Ulrich (1986) determined that a high density of natural vegetation reduces the perception of safety. Heinze *et al.*'s (2018) study states that the greater the presence of greenery and closeness to nature, the greater the relaxation individuals will feel. In this regard, it is thought that the differences in the literature may vary according to plant material size and features. In addition, it is thought that the relationship between plant material and other spatial features (lighting, maintenance, etc.) will affect the results. For example, if a dense planting design is applied at one point, the fear of crime can be reduced by supporting it with lighting elements of different sizes. Similarly, regularly pruning plants reduces the fear of crime. Another shortcoming is the lack of maintenance and vandalism of the urban furniture (especially the points where wooden materials are used). These factors are perceptually evaluated as increasing the fear of crime in individuals using the area. According to Rezvani and Sadra (2017), elements such as vandalism and negligence have a direct correlation with the fear of crime.

Previous studies have shown that there is a significant link between location and perceived risks by type of crime (Min *et al.*, 2022; Ryder *et al.*, 2016). Each person experiences fear at a different level and changes their usage of space proportionately. In public spaces, people worry about being a victim of crime themselves or having their things stolen. According to the findings of an environmental perception analyses conducted in this context, the fear of property crimes in Rüşumat is greater than that of other categories and intensities of crimes committed in urban environments. The reason for this is thought to be the fact that crimes such as theft, extortion, and abuse of trust are suitable for committing in public places. Similarly, a study conducted in Mersin city (Öztürk, 2018) revealed results that support this analysis. In addition, Adel *et al.* (2016) emphasized that the fear of crime in public spaces is related to the environment and emphasized that crimes against property occur mostly around residential areas and commercial places.

Kul (2013) determined that the fear of property crime in urban environments is greater than the fear of other categories of crime. This result is consistent with the findings of previous studies. Taking into account the map of property crime fear, it was determined that a number of spatial measures can be implemented to reduce people's fear. According to the findings, lighting is missing in areas where the need for protection from crime is felt most strongly, where there is a high density of shrubs and trees, and where there are places with no safety

precautions. Visibility could be increased by improving lighting in such spaces and rethinking security equipment in existing areas of vegetation. According to Su *et al.* (2022) the availability of street lighting and urban furniture has a negative correlation with the severity of crime. Medium height and overlapping vertical lighting models were given special consideration for pedestrian visual recognition. Furthermore, Watson (2003) emphasized that the locations and details in the background should be supplemented by low-lying lighting for surveillance reasons. Another recommendation for safety is to enhance the presence of security cameras or security officers in general across the space. Thani *et al.* (2016) discovered that environmental design measures can reduce the fear of crime.

Examining the results of the fear of crime against freedom map, created within the context of environmental perception, reveals that the result of this analysis is the most prevalent in the public space map. It is thought that the reason for this may be due to the fact that the prevention of freedom of opinion and communication, threats, blackmail, etc. are committed in public spaces less than other types of crimes (Ministry of Justice of Turkey, 2019). It is believed that the reason for this proliferation is that when exposed to this type of crime, individuals feel helpless and unable to flee. Although this form of crime occurs infrequently in public spaces, it can occur wherever environmental relationships are weak. In this regard, improvements in environmental relations with the public space are recommended (providing the mobility of the space with pedestrian crossings, motorized transportation, and surrounding cafes).

There is spatial variation across different locations with regard to the fear of personal criminal exposure. When analyzing the physical features of the places, it was discovered that there was a general lack of lighting, a high tree/bush density, and the existence of vandalism. The presence of damaged or malfunctioning equipment leads individuals to regard the environment as lacking in safety. This result is supported by Talbot and Kaplan's (1984) research. In light of the previous studies, it is advisable to implement routine maintenance measures within the designated area, as well as to replace reinforcement parts or floors as needed.

This study found different results across different types of crimes (Figure 4, 5, 6). In contrast to the findings of this study, Zhao *et al.* (2015) did not discover a difference across types of crimes. Possible reasons for this are: geographical differences, socio-demographic differences, the variability of spatial characteristics, cultural differences, and others. While there are cafes and a wedding hall in one of these areas, it was determined that the pedestrian crossing was a strong focal point in another. From this perspective, the significance of environmental connections and the presence of activity and socializing areas within public spaces in relation to the fear of crime has been reaffirmed. This result emphasizes the significance of the concept of mixed use that focuses on the sustainability of life and regenerating cities in underserved areas. This notion idealizes the existence of windows facing the usage area and doors at the road level, the presence of stores, cafes, offices, and workshops with permanent 'incoming/outgoing' personnel in a specific location (Rowley, 1996). As a result, in addition to the prior suggestions, mixed use is proposed around Rüsumat. The researchers employed the interview method to gather the perspectives of the participants in the study. The word cloud analysis conducted in this study

aimed to identify the expectations and desires of persons regarding Rüsumat. Lighting was identified as the most critical need in this location for reducing the fear of crime. This research affirms with Soydan and Benliay's (2019) claim that lighting has a unique position in public spaces.

Furthermore, the frequent use of terms such as "security guard," "security camera," "planning," "recreation," and "control" during verbal interviews indicates the existence of certain expectations on these topics. Consequently, it is believed that meeting users' expectations will lead to a decrease in fear of crime and an increase in the utilization of Rüsumat. Studies conducted by Cozens *et al.* (2003) and Pain *et al.* (2006) support these findings. Moreover, while the public space is being designed, it is anticipated that the visibility of security guards will increase, the space will meet the requirements of visitors, and its connection to its surroundings will be strengthened. One of the recommendations is for the area to be lively throughout the day and night and to be kept clean and organized at all times, as also suggested by Sampson and Raudenbush (2001).

5. CONCLUSION

In this study, the relationship between the use of public spaces and fear of crime was revealed based on quantitative measurements. Unlike previous studies, crime types were classified into three categories and evaluated specifically in the context of public space. A significant limitation of this study is the absence of a universally accepted metric for quantifying the fear of crime exposure. Consequently, the existing body of literature lacks common ground upon which its conclusions can consolidate. Considering the influence of social structure and geographical qualities on the perception of crime, it is advisable for spatial design and planning researchers to conduct extensive research on this subject. Consequently, it is essential to offer site-specific recommendations to address these concerns.

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ORCID

İsra Nur Alkan  <https://orcid.org/0000-0003-3683-8027>

Elif Kutay Karaçor  <https://orcid.org/0000-0001-9636-1406>

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