Framing Safety: Community Perspectives on Trust and Design in Shared Spaces

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Abstract

This study examines how urban design influences perceptions of safety in public spaces, using a case study from a municipality in Athens, Greece. Grounded in environmental design theory, it explores how design can address urban insecurity and promote trust, inclusion, and social cohesion. A quantitative survey captured residents' perceptions of public spaces, focusing on factors such as lighting, maintenance, infrastructure, accessibility, and public art. Findings revealed a stark contrast between daytime and nighttime safety perceptions, with women and older adults feeling especially unsafe after dark. Poor lighting, neglect, and vandalism were strongly linked to fear, while clean, well-lit, and socially active spaces fostered comfort and trust. Aesthetic elements, including public art, enhanced psychological well-being, reinforcing the emotional impact of design. The study supports the "eyes on the street" concept, highlighting the safety benefits of vibrant, mixed-use environments. Concluding, the study advocates for policies that prioritize lighting, maintenance, inclusive programming, and participatory, human-centered design. It positions urban safety as a product of both social and spatial factors, rather than solely policing or surveillance.

Keywords: urban safety; urban design; participatory planning; urbanism.

Introduction

Cities are dynamic urban systems marked by constant change and diversity. Public urban spaces play a crucial role within the evolving landscape, both shaping and reflecting the city's socio-spatial identity. Public spaces are vital to the functioning of metropolitan areas, as they provide inhabitants with a range of social, economic, and environmental benefits and experiences (Mela et al., 2023). The adequacy, accessibility, and condition of a city's public spaces are identified as critical factors in determining the overall quality of urban life (Beck, 2009; Minton, 2009; UN-Habitat, 2011).The layout and quality of public spaces play a crucial role in enhancing a city's competitiveness while promoting sustainable development. (Psatha et al., 2011; Wolch et al., 2014).

The design of public spaces plays a critical role in shaping interpersonal interaction, as it defines the opportunities for visual and auditory contact and encounters among individuals, thus

motivating social engagement. Public spaces must be designed to be inclusive and easily reachable by all users, regardless of age, gender, or social background—principles that should guide urban planning efforts (Dina Shehayeb, 2008). Availability as a key concept refers to the openness of these areas, ensuring they are not restricted or reserved for exclusive use (Sikorska et al., 2020). Equitable access must be guaranteed for all residents, regardless of socioeconomic status or physical ability, which requires addressing both physical and psychological dimensions of accessibility. Meeting this requirement is a fundamental condition for equal participation in social, cultural, and economic life. It involves not only the removal of physical barriers but also the creation of environments that respond to diverse needs. On the one hand, physical accessibility is achieved through measures such as ramps, elevators, lowered curbs, wide corridors and doorways, and designated parking spaces near entrances, ensuring independent mobility for individuals with impairments. On the other hand, sensory accessibility expands the principle by offering visual signals for individuals with hearing difficulties, auditory cues and tactile surfaces for individuals with visual impairments, and communication support such as sign language interpretation and assistive technologies. Public transportation systems likewise bear responsibility for inclusion, requiring adapted infrastructure, designated seating, and accessible information through visual and auditory announcements (Κόνιαρος & Πρινάρης, 2013). Ultimately, accessibility is inseparable from the values of inclusion and social justice, serving as both a practical necessity and a moral imperative that guarantees the full participation of all citizens in public life.

The attraction of citizens to public spaces appears to be intrinsically linked to perceptions of safety. For instance, streets that are lively and heavily frequented are generally safer than those that rely solely on police surveillance. Numerous studies have demonstrated that environments with high levels of natural surveillance and continuous social activity create stronger feelings of trust among citizens, discouraging antisocial or criminal behavior. In contrast, spaces that rely exclusively on police presence often feel controlled rather than welcoming, which may reinforce fear instead of reducing it (Van de Veer et al., 2012; Zhao et al., 2002). The presence of everyday users—residents, shopkeepers, students, and visitors—generates what Jacobs (1961) famously described as "eyes on the street," a condition that makes suspicious behavior more easily noticed and thus less likely to occur. This dynamic transforms public space into a self-regulating system where informal social control complements formal mechanisms of policing. Such an approach has been further supported by Crime Prevention Through Environmental Design (CPTED) theory, which argues that safety is best achieved when physical design encourages visibility, accessibility, and social interaction rather than dependence on surveillance technologies or patrols (Brands et al., 2021; Lee et al., 2016; Peña-García et al., 2015).

The safety generated through the presence of people in public spaces is grounded in mutual trust, which, as Jacobs (1961) argues, is more robust than the safety ensured through the presence of law enforcement. The Athenian context illustrates how the rapid concentration of activities in the city center during the 1980s led to shifts in land use and population patterns to address issues such as air pollution and traffic congestion. Maintaining a diverse range of services in central areas is crucial for their revitalization, particularly during working hours when citizens are present (Jacobs, 1961).

European evidence indicates that design-led public-realm changes can deliver meaningful safety gains, with the strongest and most consistently positive findings for upgraded street lighting and traffic-filtering pedestrian-priority schemes, complemented by robust burglary reductions from micro-place access control. Meta-analyses that include substantial UK evaluations report average crime decreases of roughly 14–20% following improved street lighting, suggesting mechanisms beyond visibility—such as signals of investment and social order—while also emphasizing contextual heterogeneity (Welsh & Farrington, 2008). Importantly, a large England–Wales interrupted

time-series analysis found that part-night lighting, dimming, and white-light transitions did not increase total crime and in some cases correlated with small reductions, underscoring that design quality and siting matter more than simple illumination levels (Perkins et al., 2015). In London, Low Traffic Neighbourhoods have led to medium-term reductions in total street crime—about 10% initially, rising to around 18% over three years—with the largest declines in violence and sexual offences. They have also contributed to significant decreases in road injuries within treated grids without increasing risks on boundary roads. The outcomes reflect greater informal guard-ianship, the reallocation of street space to walking and cycling, and support national evidence emphasizing clear communication, local adaptation, and ongoing monitoring. (Department for Transport (DfT), 2024; Fang et al., 2020; Furlong et al., 2025; Goodman, 2018). Barcelona's super-blocks show consistent perception and use-of-space improvements—greater tranquility, com-fort, and opportunities to socialize—alongside modeled health gains at scale, though rigorous crime evaluations remain sparse, making this an evidence gap for future European work (Mueller et al., 2018; WHO European Healthy Cities Network, 2020). On semi-public residential networks, alley-gating in multiple UK cities has produced sizable burglary reductions (often on the order of 30%) with diffusion of benefits rather than displacement, and qualitative follow-ups report sus-tained resident satisfacción and lower perceived disorder, highlighting territorial reinforcement and access control as effective micro-scale levers when coupled with maintenance and com-munity buy-in (Bowers et al., 2005; Sidebottom et al., 2017). Perception evidence in Europe is improving but remains less robust than objective outcomes. Studies in London and Barcelona indicate that pedestrian priority schemes enhance perceived local environments, while qualita-tive research in UK alley-gated areas reports improved feelings of order, highlighting the need for geocoded, time-specific fear of crime measures in future evaluations. Nighttime safety on cycling corridors also emerges as a design priority, with advocacy mapping identifying segments that feel socially unsafe after dark due to isolation and inadequate lighting. (Goodman & Aldred, 2021; London Cycling Company, 2025). Methodologically, European studies would benefit from wider use of exposure normalization (e.g., footfall or device-based person-hours), systematic ring-buffer or network spillover tests, and disaggregation of design "dose" (lighting uniformity, glare, planting height, furniture placement) alongside stewardship fidelity to sharpen mechanism tests; nonetheless, the current European record supports the practical conclusion that upgrading lighting quality, filtering through-traffic to create calmer residential grids, and implementing tar-geted access-control treatments can reduce crime and injuries without systematically displacing harm, while perceived safety and trust tend to improve where measured (Sidebottom et al., 2017; Steinbach et al., 2015; Welsh & Farrington, 2008).

Research by Noor Syahid et al. (2017), highlights the role of green space management in the Netherlands as a key element of sustainable urban development, with important implications for safety in public spaces. The study adopts an interdisciplinary approach, drawing on anthropolo-gy, urban planning, and sociology, to examine how urban space is interpreted, negotiated, and shaped to support both environmental and social objectives. Findings indicate that Dutch spatial policy not only regulates land use and environmental quality but also frames public spaces as areas of human activity where safety and accessibility are central concerns. By positioning space as a negotiated arena influenced by local practices and broader EU sustainability frameworks, the study underscores how effective spatial management can enhance the safety, usability, and social inclusivity of public areas, contributing to both community well-being and sustainable urban development (Syahid et al., 2017).

Expanding the discussion beyond the European context, *Medellín Urban Design Studio: Providing Infrastructure for Informal Settlements* (Samper et al., 2025) demonstrates how urban design can serve as a tool for equality and inclusion in rapidly urbanising cities of the Global South. The authors highlight Medellín's experience as a model of "social urbanism," where high-quality

infrastructure—such as cable-cars, public spaces, and community facilities—is used to connect informal settlements to the wider city while enhancing dignity and belonging. Through participatory processes and context-responsive design, these interventions address deep-seated spatial and social inequities, transforming areas of exclusion into active, integrated parts of the urban fabric, affirming the right of all residents to the city (Samper et al., 2025).

Another key dimension of public space safety concerns the shifts observed in the post-COVID-19 context. In the wake of the COVID-19 pandemic, which profoundly disrupted daily life and imposed restrictions on social interaction, urban public spaces have gained renewed importance. They have emerged as vital venues for relaxation, recreation, and social engagement, offering residents opportunities to connect with others while adhering to physical distancing measures. Beyond their immediate social function, public spaces have also highlighted the critical role of accessible, flexible, and well-designed urban environments in fostering community resilience, well-being, and sustainable city living.(Mela et al., 2024). Undoubtedly, the COVID-19 pandemic has profoundly reshaped urban lifestyles and the use of public and private spaces, with lasting implications for city planning and design that are still unfolding. Emerging guidelines for resilient urban development emphasize the integration of nature-based solutions, improved ventilation and natural lighting, flexible mixed-use buildings, and enlarged, multifunctional open spaces that safely accommodate activities shifted from indoors to outdoors(Glavan et al., 2022).

While urban design adaptations in response to COVID-19 focus on resilience and functionality, it is equally important to consider how social factors, particularly gender and other identities, influence perceptions of safety within these reconfigured spaces. Research consistently shows that women experience feelings of insecurity in public environments more intensely than men, underscoring the role of gender identity in mediating how safety is understood and lived (Mela & Tousi, 2023). Consequently, women's heightened sense of vulnerability can undermine their ability to relax and fully enjoy public spaces, thereby restricting their access and participation in urban life. Crime prevention through environmental design (CPTED) aims to demonstrate that the proper design and effective use of the built environment can reduce both the fear of crime and the occurrence of criminal activities, thereby improving residents' quality of life, fostering safer, more sustainable communities. The primary objective of CPTED is to analyze the characteristics of a specific area's physical or built environment and implement targeted interventions to eliminate vulnerabilities that facilitate illegal behavior (Ρούσσου, 2018). Through this approach, high-quality solutions are applied that are visually appealing, do not impede the normal use of space, and can be implemented easily and cost-effectively during construction or renovation projects. Designers and architects also integrate resilience against natural hazards—such as fire, earthquakes, floods, and adverse weather conditions—into their projects (Cozens, 2008). The three-dimensional approach to CPTED provides a framework for evaluating a space's design and use by considering its purpose, social and cultural definitions, and the extent to which its physical layout supports desired behaviors. By addressing key questions about a space's intended function, boundaries, and design effectiveness, this approach helps identify areas needing improvement. The insights gained can guide modifications to enhance functionality, encourage appropriate behaviors, and optimize the overall use of the space.

High-quality architecture, art, and landscape design that respect the existing urban fabric and local character strengthen public perceptions of safety while fostering a sense of community identity and local ownership (Coleman et al., 2021; Mela et al., 2025; Nyaiyonga, 2024). Such environments encourage residents to feel pride in their neighborhoods. Crime and antisocial behavior can be deterred by ensuring that streets, pathways, and public spaces remain subject to casual surveillance throughout the day (Σβορώνος, 2016). Urban layouts that guarantee the presence of "eyes on the street" communicate to potential offenders that criminal or antisocial activities are likely

to be observed. Furthermore, the active use of streets and public spaces during both daytime and evening hours serves as an effective means of limiting opportunities for delinquency.

Methods

The primary aim of this study is to identify the factors contributing to insecurity in major urban areas and to explore strategies for addressing urban fear in public spaces, with the ultimate goal of fostering safe and resilient cities. A sense of security is a fundamental aspect of daily life in any urban environment. In the densely populated Municipality of Zografou, residents' perceptions of safety directly influence their quality of life and social cohesion. The Municipality of Zografou was selected for this study due to its high population density, diverse urban fabric, and the presence of a strong university community, which contributes to both vibrancy and unique safety challenges in public spaces. This study investigates how residents experience security in their everyday lives, examines the factors shaping these perceptions, and analyzes the measures implemented by local authorities to enhance safety. The research seeks to provide insights into community needs and concerns, offering recommendations to improve safety and well-being in the area. To achieve this, a questionnaire was developed and administered to residents of all ages in Zografou. Data collection occurred between October 30, 2024, and March 30, 2025, at various locations, including commercial areas, public services (municipal offices and Citizen Service Centers), streets, and green spaces across all neighborhoods. Questionnaires were completed through face-to-face interviews, resulting in 275 responses, representing a 90% confidence level relative to the municipality's population of 69,874 (2021 census). A central focus of the study was to identify the characteristics that make public spaces safe and supportive of residents' quality of life (Fig.1). By integrating diverse data sources, the research emphasizes the need to redefine public spaces as the heart of communities and to reconsider urban planning strategies to ensure these spaces remain functional, accessible, and inclusive for all citizens.

Fig. 1

Methodology Scheme, Authors' work
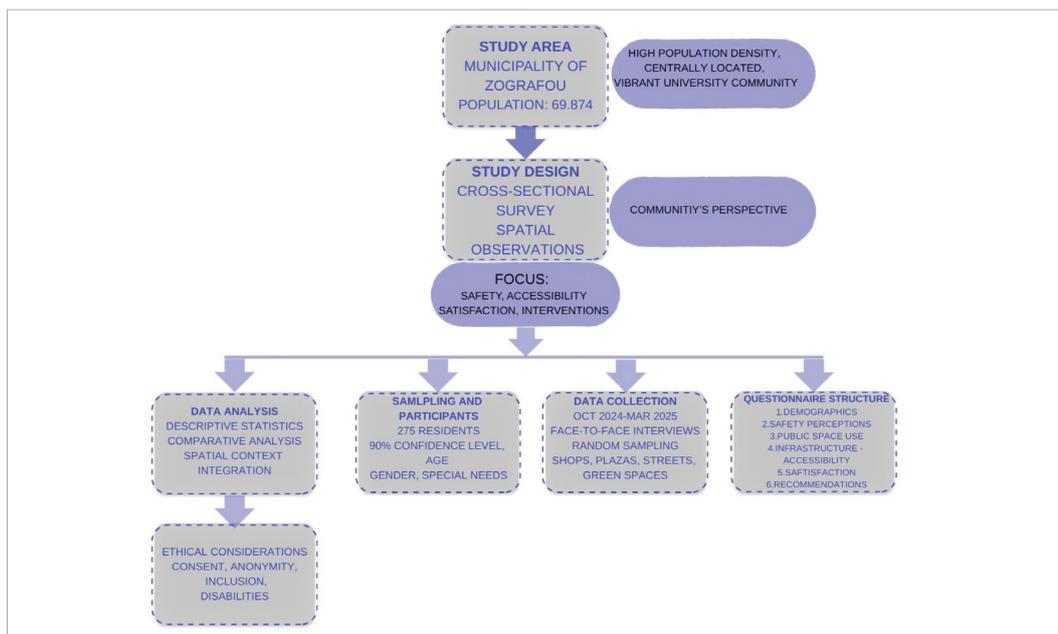
Results

The Municipality of Zografou is located in the Central Athens Regional Unit of the Attica Region, approximately 4 km east of the center of Athens (Fig.2). With a population of 69,874 inhabitants (2021 census), it forms a southeastern suburb of the capital. Zografou borders Papagou-Cholargos and Athens to the north, Kaisariani and Athens to the south, Athens to the west, and lies adjacent to Mount Hymettus to the east. Covering an area of 8,517 acres, around 40% of the

municipality—east of the western peripheral Hymettus Avenue—falls within the mountain's forested zone.

As defined by the 1985 Master Plan for the Athens Metropolitan Area (R.S.A.), Zografou functions as a central municipality of supra-lo-cal significance within the eastern Athens residential network, a role maintained under the draft of the new R.S.A. The presence of the National Technical University of Athens, the University of Athens, the Goudi and Ilisia parks, and the Zografou cemetery reinforces its position as a key institutional and recreational hub. Planned infrastructure improvements, particularly the METRO expansion, are expected to further enhance mobility and the overall quality of life in the municipality.
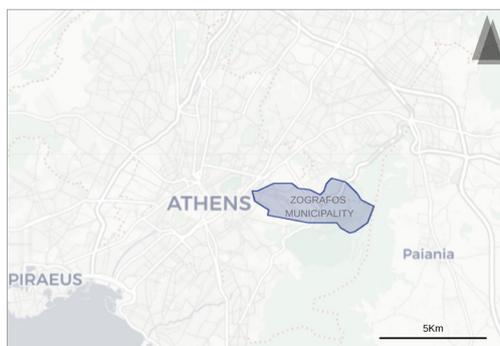

Fig. 2

Location of the Municipality of Zografos within the Athens Region, Authors' work, background map:(Ministry of Environment & Energy, n.d.)

Demographic and Background Information of Respondents from the Municipality of Zografou

The survey conducted in the Municipality of Zografou provides a comprehensive overview of res-idents' perceptions of safety, accessibility, and satisfaction with public spaces. Administered be-tween October 30, 2024, and March 30, 2025, the questionnaire targeted residents of all ages across various locations, including commercial areas, municipal offices, Citizen Service Centers, streets, and green spaces. A total of 275 questionnaires were completed through face-to-face interviews, representing a 90% confidence level relative to the municipality's population of 69,874 (2021 census).

Regarding demographic characteristics, 31% of respondents reported living in the area for 1 to 5 years, 38% for over 10 years, and 25% for less than one year, reflecting urban mobility and short-term tenancy among students and young professionals. The largest age group was 26–35 years (47%), likely linked to the presence of universities, followed by 46–55 years (19%) and 56–65 years (13%). Young adults (18–25) and seniors (66+) comprised smaller proportions. Women repre-sented 60% of the sample and men 40%, while 12% of respondents reported having a disability, offering insights into accessibility and inclusion issues.

I. Perceptions of Safety and Risk

Safety during nighttime was a prominent issue in this research. As presented in Figure 3, a sta-tistically significant percentage of the participants stated feelings of insecurity during nighttime. Moreover, survey findings indicate notable gender differences in perceptions of safety, particularly during nighttime mobility (**Fig.4**). Overall, most residents reported balanced feelings of safety and insecurity, with 47% feeling "rarely" at risk and 38% feeling neutral. Only 6% reported experienc-ing risk "often," with no respondents indicating "very often." However, all instances of frequent perceived risk were reported by women, highlighting a clear gender dimension in the perception of safety. Similarly, the response "never" was reported exclusively by women (11%), further indi-cating heightened sensitivity to potential threats.

Negative experiences in public spaces were reported by a minority but included theft (11%), acci-dents (30% of participants, either as pedestrians or drivers), sexual harassment (5%), and racially motivated attacks (3%), demonstrating that various risks, though relatively limited in scale, affect daily life. Age also influenced engagement with public spaces. Seniors (66+) reported frequent or very frequent visits to squares and parks (83%), with none indicating they never visited. Residents aged 26–35 mainly visited often (60%), while 27% maintained a neutral stance. In contrast, young adults (18–25) exhibited a polarized pattern, reporting either "rarely" or "very frequently" visiting public spaces.

Perceptions of safety in public spaces were strongly associated with lighting adequacy. Men generally reported feeling safer, with 75% indicating they felt "quite safe" and 25% neutral, whereas women reported higher insecurity: 4% "not at all safe," 22% "slightly safe," and 41% "quite safe." Low lighting levels, particularly at night in sensitive areas such as parking lots and open spaces around buildings, likely exacerbate these perceptions. Specifically, 37.5% of respondents indicated insufficient lighting in areas requiring good visibility, and 43% reported inadequate nighttime lighting in public areas (categories 1 and 2). It is essential to recognize that perceptions of safety are shaped not only by gender but also by the intersection of multiple social identities, such as age, disability, and socioeconomic status. An intersectional approach reveals how vulnerabilities compound, producing differentiated experiences of insecurity that urban design must address inclusively(Hancock, 2007).

Fig. 3

Responses to the question "How safe do you feel when walking alone in your neighborhood at night?", authors' work

Fig. 4

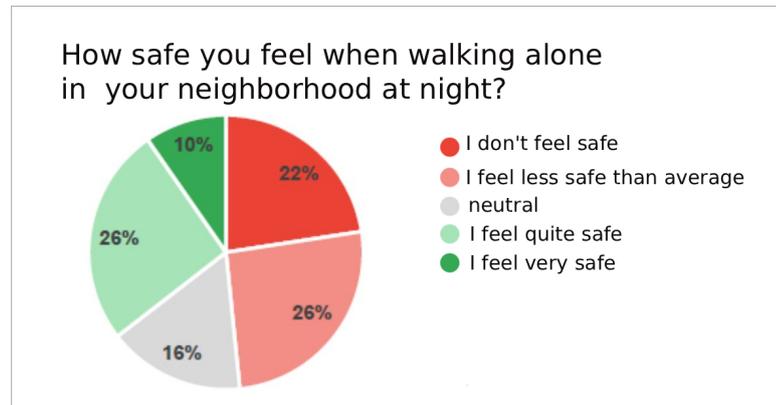Gender differences regarding safety at night, authors' work

II. Accessibility and Pedestrian Infrastructure

Accessibility was a key concern for residents with disabilities. Among this group, 75% reported that public spaces were not easily accessible ("1"), while only 25% chose a slightly more positive category ("2"). No respondents selected higher categories ("3," "4," or "5"). Individuals without disabilities expressed a more moderate view, with 43% selecting categories "3" and "4," highlighting differences in perceived accessibility between those who experience barriers firsthand and those who do not.

Pedestrian safety was another prominent issue. When asked about street-crossing safety, 47% of respondents felt "quite safe," 16% neutral or slightly safe, 5% "very safe," and 15% "not safe at all." Women generally reported more cautious perceptions than men. Regarding infrastructure, 42% rated pedestrian crossings and sidewalks as "not at all satisfactory," 31% as "slightly satisfactory," 18% neutral, and only 9% as sufficient and in good condition. Pedestrian crossing signals were similarly rated, with 41% "slightly satisfactory," 35% neutral, and 9% sufficient; none indicated "very good" signaling.

III. Public Space Satisfaction and Urban Interventions

Satisfaction with public park amenities varied by age. Residents under 65 predominantly reported negative or neutral attitudes, with combined "not at all" or "slightly" satisfied responses reaching 33% and 75%, respectively. In contrast, among residents over 66, 50% reported "slightly satisfied" and 50% "quite satisfied," with no neutral or very positive responses. This indicates that younger

and middle-aged residents have higher expectations or different needs regarding green space use.

Regarding the role of art in public spaces, responses reflected moderate optimism (Fig.5). When asked whether public art can improve safety, 28% responded "quite" and 9% "very much," while 34% remained neutral. Regarding art as a deterrent to criminal behavior, 31% were neutral, and positive responses were limited (16% "quite" and 3% "very much"). These findings suggest recognition of art's potential, tempered by caution regarding its direct effectiveness, possibly due to limited experience or awareness. Public art contributes to urban safety in both symbolic and functional ways. Symbolically, it communicates care, investment, and community identity, which can foster a sense of belonging and discourage neglect or antisocial behaviour. Functionally, public art can activate underused spaces, attract more people to stay and interact, and thereby strengthen natural surveillance by increasing "eyes on the street." In some cases, it can enhance spatial orientation or lighting, subtly improving visibility and comfort. Thus, while its impact may not be as immediate as policing or lighting infrastructure, public art can indirectly support safety by enhancing social cohesion and the perceived quality of the urban environment.
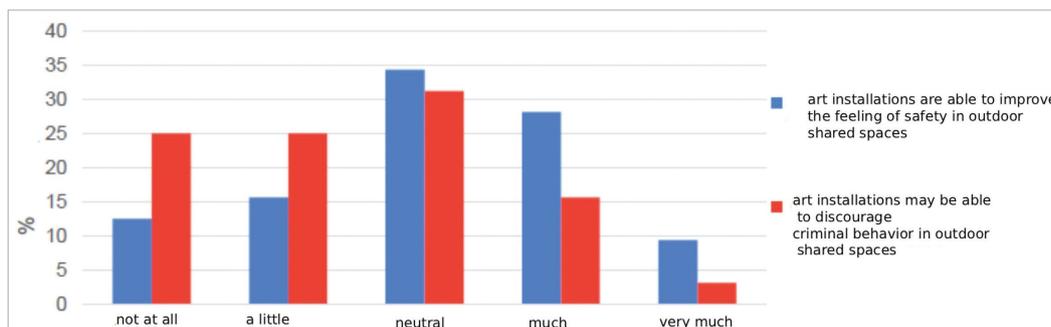

Fig. 5

The role of art installations in public spaces to increase the feeling of safety, authors' work

In contrast, responses indicated strong support for traditional policing as a means of improving safety. Specifically, 34% of respondents believed increased policing could "quite" improve safety, and 44% "very much," totaling 78% positive responses. Comparison with artistic interventions demonstrates residents' preference for tangible, immediately implementable measures over symbolic or aesthetic approaches.

The expressed preference for traditional policing may be construed not as an affirmation of its efficacy but rather as an indication of a well-documented phenomenon: when citizens sense uncertainty or inadequate institutional responsiveness, they tend to favor familiar, readily implementable solutions. Previous international studies indicate that communities frequently favor obvious enforcement mechanisms—such as heightened policing—especially when alternative safety-enhancing strategies (e.g., enhancements in environmental design, ongoing social programming, or participatory placemaking initiatives) are either not fully implemented or regarded as dependable options (Ding, 2025; Sampson, 2017; Van de Veer et al., 2012). In this sense, the strong support observed here aligns with these broader behavioural patterns: respondents may be expressing a default preference for the most "tangible" intervention available. It is therefore plausible that, under conditions where structural, social, and spatial interventions were more established or demonstrated, residents' preferences could shift toward less enforcement-oriented approaches.

IV. Citizens' Priorities and Recommendations

Residents highlighted deficiencies in urban infrastructure affecting walking and mobility. Sidewalks were frequently described as narrow, poorly maintained, uneven, or obstructed by parked vehicles, a concern for the 12% of respondents with disabilities. Insufficient lighting, lack of open and green spaces, and poor cleanliness were also emphasized as factors diminishing the safety and

usability of public spaces. Proposals for improvement focused on both infrastructure and supervisory interventions. A primary recommendation was increasing public lighting in dark areas, including narrow streets, parks, and abandoned spaces, which often deters nighttime pedestrian activity. Other suggestions included enhancing sidewalk quality, pedestrian crossings, and signage to ensure safer street crossings, as well as expanding green spaces to improve livability and community engagement.

Discussion

People in Greek cities are expressing a common desire for more livable, green, and well-maintained public areas. Neglect and cleanliness are identified as negative aspects in Kaisariani and Athens squares, while lighting and greenery are the primary priorities for renovation (Mela et al., 2025; Pantavou et al., 2021). Even if they aren't explicitly linked to fear of crime, pedestrianization and green spaces are associated with a general feeling of safety and well-being in Kalamaria (Panagopoulos et al., 2018). Additionally, given Kypseli's thick fabric, daily walking decisions are based on how accessible and safe a street seems; active edges, sidewalk width, and visibility are important factors (Kyriakidis et al., 2024). However, women in Attica report feeling less safe than men, which limits their comfort level while using public spaces. This is an equity gap that we must not only recognize but also plan for and assess (Mela & Tousi, 2023). Making ongoing upgrades "evaluation-ready" is a practical next step. This includes defining night-time windows, measuring lighting quality (not just brightness, but uniformity and vertical illuminance), phasing rollouts so treated and untreated blocks can be compared, and using short, validated safety scales to pair police data with on-site, night-time intercepts (Mela et al., 2025; Perkins et al., 2015). From the starting point, equity should be addressed. Oversample women and lower-income residents at pertinent hours and report effects by subgroup, not simply averages, given the gender gap and financial constraints surrounding walk-to-transit improvements (Tzanni et al., 2022). Lastly, we should assess adaptability across a few contrasting localities using a common, lean approach because Greek urban forms differ, ranging from peri-urban parks to Kypseli's narrow sidewalks (Baxevani et al., 2024; Kyriakidis et al., 2024). To put it briefly, citizens are clear about the solutions they desire; now, municipalities must support their claims with measures.

These trends are echoed in a wide range of international literature. Enhancing public lighting has been shown in randomized and quasi-experimental trials to decrease street crime at night and improve feelings of safety and traditional British field tests have shown comparable results (Chalfin et al., 2019; Painter, 1996; Welsh & Farrington, 2008). Research on urban greenery shows that when sightlines are maintained and vegetation is properly managed, there are safety benefits. Higher tree canopy and "greenness" are associated with lower crime rates and a higher sense of safety (Donovan & Prestemon, 2012; Kuo & Sullivan, 2001). The necessity to prioritize women's experiences in both design and evaluation is highlighted by long-standing research that shows gender differences in fear of crime in streets and transit (Ceccato & Loukaitou-Sideris, 2020; Painter, 1996). Given the high concentration of crime at extremely small units of place and the success of place-based interventions, micro-place criminology further supports concentrating on street segments (Weisburd, 2015). Lastly, field studies on disorder demonstrate that upkeep and cleanliness, in addition to improvements in lighting and greenery, influence norms and reassurance (Keizer et al., 2008).

It is important to note that the current study has certain limitations that should be considered when interpreting its findings. The first limitation concerns the sample size and its representativeness, as the survey focused exclusively on the Municipality of Zografou and did not include a broader population or different socio-economic groups. Additionally, the geographic restriction of the study may limit the generalizability of the results to other areas with different characteristics. Finally, some factors influencing perceptions of safety—such as personal experiences, media influence, or cultural perceptions of risk—were not explored in depth and could be the subject of

further investigation.

For further exploration of urban safety, future research could focus on larger-scale studies, comparing different municipalities both within and outside Attica, in order to identify common patterns and variations in safety perceptions and realities. It would also be particularly interesting to investigate the impact of specific design interventions—such as increasing urban greenery, installing public art, or implementing bioclimatic upgrades—on citizens' sense of security using both quantitative and qualitative methods. The use of new technologies, such as "smart" lighting systems or digital incident reporting platforms, could also be explored in future research to identify effective and sustainable crime prevention strategies. In recent years, digital tools and smart city technologies have become increasingly relevant for enhancing urban safety. Smart lighting systems, motion sensors, and mobile applications for incident reporting provide residents with a stronger sense of control and connectivity. These tools do not replace the social dimension of safety but complement it, creating a hybrid model where physical design and digital innovation jointly contribute to secure and inclusive urban environments (Kitchin, 2015; Silva et al., 2018). Green infrastructure can also play a dual role by addressing both environmental sustainability and safety. Shaded, well-maintained, and ecologically designed public areas reduce the effects of urban heat islands while simultaneously attracting more users, thereby enhancing natural surveillance and the perception of security (Gill et al., 2007).

To support future interventions in Zografou, this study proposes an evaluation framework that enables systematic assessment of safety-related upgrades. The framework integrates technical criteria, social indicators, and participatory processes, ensuring that interventions—such as improvements in lighting, accessibility, and public space activation—are both measurable and adaptable. It recommends documenting baseline conditions, defining clear objectives and indicators (e.g. lighting comfort and uniformity, accessibility scores, footfall, or perceived safety), and applying repeated measurements after implementation. Special emphasis is placed on night-time evaluation, exposure-based metrics (person-hours or footfall), and the inclusion of vulnerable groups such as women, older adults, and people with disabilities in perception surveys and engagement activities (Goswami & Chakraborty, 2023; Schanda, 1999). This approach can help municipalities move from ad-hoc improvements to evidence-based decision-making, enhancing transparency, accountability, and long-term effectiveness (**Fig.6**).

Domain	Indicator	Target / Threshold	Measurement Method	Timing
Lighting Quality	Vertical illuminance (lux) and uniformity (U_0 = min/avg)	≥ 9–10 lux vertical / U_0 ≥ 0.4 in pedestrian areas	Lux meter field survey / lighting plans	Baseline, 3–12 months post-upgrade
Lighting Comfort	Glare (UGR) or resident complaints	Within CIE/EN limits / minimal glare reports	Photometric analysis and complaint logs	Quarterly
Accessibility	Accessibility audit score (ramps, tactile paving, curb cuts)	≥ 90% compliance in upgraded areas	Standardized checklist (EU/ADA guidelines)	Baseline and after works
Pedestrian Safety	Crosswalk condition and signal timing (seconds)	Safe crossing time and unobstructed visibility	Field observation and timing	Baseline & 6 months
Public Art / Activation	Space activation: events, dwell time, use after dark	≥ 20% increase in users or ≥ 4 events/year	Observational counts, community logs	Quarterly
Community Engagement	Number and diversity of participants	Representation of women, seniors, low-income residents	Attendance lists and short surveys	Each activity
Perceived Safety	Night-time safety score (5-point scale)	+15–25% improvement from baseline	Short intercept surveys (oversampling women/elderly)	Baseline, 3, 12 months
Objective Safety	Incidents per 1,000 person-hours (crime/accidents)	Reduction relative to baseline or control areas	Police/municipal data adjusted by footfall	Quarterly
Maintenance / Stewardship	% of infrastructure functional (lighting, art, cleanliness)	≥ 95% operational / repairs within 7 days	Maintenance logs & visual inspections	Monthly

Fig. 6

Evaluation Framework for Safety-Oriented Public Space Upgrades in Zografou, authors' work

Conclusions

This study examined the sense of safety experienced by residents of the Municipality of Zografou in public spaces, a critical factor directly influencing quality of life and daily routines. By investigating the factors shaping perceptions of safety, both positive and negative aspects of the existing urban environment were highlighted. Safety in public spaces in Zografou emerges as a central concern for quality of life, with key challenges including the adequacy of sidewalks and accessibility to urban areas. Specific issues requiring attention include the need to strengthen policing and improve lighting in public areas.

Notably, women report heightened feelings of insecurity in public spaces, particularly at night, compared to men, revealing a clear gender dimension in perceptions of urban safety. Nevertheless, current efforts to enhance the sense of safety are commendable and should be sustained. The analysis of CPTED methods and principles demonstrates a distinct approach to crime prevention, one that can be implemented easily and cost-effectively. Urban designers should consider these principles during the planning stages of public spaces. When applied correctly, with a human-centered focus, CPTED can promote the development of urban areas that are safe, sustainable, and citizen-friendly, while mitigating antisocial and illegal behaviors.

In conclusion, it is evident that fostering collaboration between authorities and citizens, alongside the adoption of innovative safety measures, can play a decisive role in enhancing the sense of security and well-being in Zografou, as well as in other municipalities across the Attica region.

Acknowledgment

Use of Artificial Intelligence Tools

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