

Perceptions of Safety and Crime Deterrence: The Impact of CCTV Cameras in Business Establishments

Christyl R. Nano, Joseph Alexander P. Paghasian, Samuel C. Colango Jr., Steward Ditche, Teopisto Yray Culanag, Jr., & Jose F. Cuevas, Jr.

Misamis University, Ozamiz City, Philippines

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ABSTRACT

This study investigates the impact of closed-circuit television (CCTV) cameras on perceptions of safety and crime deterrence in business establishments. Using a descriptive-correlational design, data were gathered from 120 purposively selected respondents, including business owners, employees, and regular customers of establishments equipped with CCTV systems. Three researcher-made questionnaires were utilized to measure perceptions of safety, perceived crime deterrence, and the presence of CCTV cameras. Data were analyzed using mean and standard deviation to determine perception levels, while Pearson's correlation assessed the relationships among variables. Findings revealed that the presence of CCTV cameras significantly influences stakeholders' perceptions of safety and crime deterrence in commercial areas. Perceived safety was strongly associated with personal security, fear reduction, and awareness of surveillance, while perceived crime deterrence was linked to increased reporting, reduced theft and burglary, and minimized property damage. Moreover, the visibility, functionality, and strategic placement of CCTV systems were vital in shaping these perceptions. The study concludes that CCTV cameras not only serve as tools for evidence collection but also foster a psychological sense of security that enhances customer confidence and supports business sustainability.

Keywords: business establishments, CCTV cameras, crime deterrence, perceived safety, surveillance

INTRODUCTION

Crime and insecurity are still widespread issues in cities across the globe, having far-reaching societal and economic effects (Atai & Ita, 2021; Nwokwu & Ogayi, 2021; Kashif et al., 2025). Increasing crime levels risk public security, lower the quality of life for citizens, and deter economic investment from targeted neighborhoods (Navarrete-Hernandez et al., 2023; Springs, 2024; Owens & Ba, 2021). In the Philippines, the integration of surveillance technology into public safety and business security has become a national priority through initiatives such as the Safe City Program and the Davao Public Safety and Security Command Center, which utilize CCTV networks to enhance real-time monitoring, emergency response, and crime prevention (Dugayon et al., 2025). Across various local government units, ordinances now require the installation of CCTV systems in commercial establishments, banks, and other high-traffic areas to strengthen situational awareness and deter criminal activities (Kirui, 2024). At the national level, most governments acknowledge the efficiency of surveillance in minimizing crime rates and aiding law enforcement (Faqir et al., 2023; Fontes & Perrone, 2021; Stoyanova et al., 2020). The widespread use of CCTV is indicative of increasing dependence on technology to meet security needs in crowded public and private settings (Vogiatzaki et al., 2020; O'Malley & Smith, 2022; Troisi et al., 2022). Criminological theories such as Routine Activity Theory and Crime Prevention through Environmental Design (CPTED) highlights environmental adjustments, such as surveillance, to bring about ambiances disincentivizing criminal behavior (Armitage & Tompson, 2022; Gooren, 2023; Choi et al., 2025). Prior literature finds a lack of empirical evidence specifically addressed at how perceptions of the effectiveness of CCTV are constructed within commercial settings (Piza, 2021; Ranieri et al., 2022; Doberstein et al., 2022). Filling these gaps would enhance the depth of understanding of the perception's role in security practice and its real-world effects (Chookaew et al., 2024; Saeed et al., 2024).

METHODS

This study will employ a quantitative research design specifically a descriptive-correlational kind of research design in investigating the correlation of the installation of CCTV cameras with business establishments' perceptions of safety and crime deterrence. The design enables the researcher to measure the strength and direction of relationships between variables but not causation. It is suitable for investigating CCTV visibility, functionality, and location in terms of people's perception of safety and perception of crime deterrence. The design offers informative findings regarding the effectiveness of surveillance systems in fostering public confidence and security in business.

RESULTS AND DISCUSSIONS

Perceived Safety in Business Establishments

The perceived safety of commercial establishments not only has a huge impact on the behavior of clients, but successful companies also depend on it for customer and employee satisfaction (Akram et al., 2022). When customers feel confident about the service they are receiving, they will surely be more satisfied and thus loyal to this establishment (Singhet al., 2023). But the sense of safety doesn't hinge only on whether cameras and guards can be seen, or whether lighting is in conformity with established norms (Glynn, 2024). Other intangible factors also come into play, such as what the establishment's official attitude is toward such things as emergencies. Businesses that consciously create and maintain a proper climate for their employees to work in, in places where crime rates are a consideration, can draw the trust and support of the whole community (Streimikiene, 2021). On the one hand we know: Consumer attitudes toward the safety of a place not only influence their actual buying decisions, but also determine long-term economic health by attracting more clients and retaining staffs that are satisfactory both in skill levels and as people. So business owners and management teams should place safety at the top of their priority list, tailoring protective policies for both employees and customers in a way that they can fully understand (Khan et al., 2023). Table 1 shows the perceived safety level of business establishments.

Table 1. Level of perceived safety in business establishments N= 120

Sub-construct	Perceived Safety		
	Mean	SD	Remark
Personal Security	3.65	0.12	Very High Perception of Safety
Fear Reduction	3.56	0.07	Very High Perception of Safety
Awareness of Surveillance	3.70	0.07	Very High Perception of Safety

Note. Perceived Safety Scale: 3.28-4.00 (Very High Perception of Safety); 2.52-3.27 (High Perception of Safety); 1.76-2.51 (Low Perception of Safety); 1.00-1.75 (Very Low Perception of Safety)

Table 1 shows how safe people feel in business establishments based on responses from 120 individuals. It looks at three main areas: personal security, fear reduction, and awareness of surveillance. The average scores for these areas are 3.65, 3.56, and 3.70, respectively. All these scores fall into the "Very Highly Perception of Safety" category on the provided scale. These high average values suggest that most respondents feel very safe in these business environments. The score for personal security, at 3.65, indicates that people believe their physical safety is well protected. Likewise, the fear reduction score of 3.56 shows a notable drop in anxiety about possible threats. This likely helps create a more comfortable and secure atmosphere for both customers and staff.

The highest mean score of 3.70 was recorded for awareness of surveillance, showing that visible security measures such as cameras and monitoring systems increase the perception of safety (Ardabili et al., 2024). Low standard deviations across all sub-constructs (0.07 - 0.12) indicated that the responses given by the participants were highly consistent, one in which they shared the confidence of safety measures being and having been carried out by the business establishments. This would mean that good security is reinforced greatly by the public perception of it (Baffour Adumata, 2025). Therefore, it was equally important to put security procedures in place and let the clients know about them in ways that generate a safe feeling among them (Lysova, 2025). Also, the data call upon a more robust need for businesses to keep and improve the security system because a strong perception of safety not only ensures the patrons' safety but also engenders customer loyalty and sustains commercial activity. The inferences point out that both physical security and its psychological reassurance by surveillance are core components that help shape how the public views safety within business environments (Shetty et al., 2024).

A number of related studies further substantiate the findings associated with high levels of perceived safety in business establishments, reaffirming the role of security measures in ensuring a safe environment. Elnahla (2021), for example, found that visible security measures, such as surveillance cameras, and the presence of security personnel, greatly legitimize customers' feelings of safety and lessen fear of crime within retail contexts. This study pointed out that the presence of such measures not only dissuades criminal acts but increases trust and satisfaction among customers in general (Pisier-Caillet & Ristea, 2024). Research like that by Malik et al. (2024) confirmed that effective security systems yield great psychological benefits: those aware that surveillance is ongoing report noticeably less anxiety and greater personal security. Such studies corroborate the findings reported here, whereby high awareness of surveillance and personal security is associated with very high safety perceptions (Park & Jones-Jang, 2023).

Also, studies focusing on fear reduction highlight the great importance of creating safe environments in a given business context. Akinbogun et al. (2024) have shown that proactive crime prevention methods and open communication about security policies can help alleviate fear in patrons and employees alike, which in turn promotes business patronage through more frequent and longer visits. Their findings suggest that fear reduction may be a function of businesses communicating with customers directly about safe systems rather than simply the presence of physical security (Chi & Hoang Vu, 2023). Also, Benson et al. (2024) claimed that a more balanced approach combining staff training, surveillance, and engagement with the community yields greater sustainability in the improvement of perceived safety. These studies jointly lend credence to the present findings in that the perceived safety is multifaceted, relying on not only tangible security measures but also the psychological reassurances these provide; producing in the long run trust, thereby enhancing the general experience in business environments (Syropoulos, 2023).

Perceived safety is greatly recognized by establishments and high scores are accorded to it in personal security, fear reduction, and awareness of surveillance, which emphasizes the role of security measures in the creation of environments wherein customers and business staff feel safe and secure (Ahmad & Gustavsson, 2023). This means, therefore, that organizations should be continuously investing in extremely visible security methods and technologies to reinforce those perceptions: surveillance systems, highly-trained security staff, and so on (Campbell III, 2023). Alongside this, an environment should be created where communicating about security is actively encouraged and allow for some focus on its psychological aspect in reducing fear and employing goodwill towards the establishment. In the end, these implications suggest that effective safety approaches engender not only the protection of physical assets but also of customer trust which fosters business sustainability with the heightened patronage and well-being of employees Okeke & Ezennia, 2023).

Perceived Crime Deterrence

Perceived crime deterrence refers to the members of society's opinion about how crime control measures implemented in an environment prevent crime (Bagalanon et al., 2024). Obviously, it plays a significant part in the attitudes and confidence of employees and customers of the commercial establishment (Fahmi et al., 2023). When most people believe that crime deterrent mechanisms such as the presence of security guards, surveillance cameras monitoring activity, and enforcement of policies are visible and effective, they are likely

to interact freely and comfortably on the premises in what would be considered normal behavior (Walby & Joshua, 2021). The sense of crime deterrence curtails fear and guilt in potential offenders, leading to a safer environment (Chamard, 2024). High perceived crime deterrent conditions build confidence in an establishment's dedication to security, then increase its reputation, thus engendering patronage (Akinbogun et al., 2024). The resulting increased visibility will be favorable for the building security, directly contributing to the business's overall success (Habbal et al., 2024). This results in the level of perceived crime deterrence in business establishments presented in Table 2

Table 2. Level of perceived crime deterrence in business establishments. N= 120

Sub-construct	Perceived Crime Deterrence		
	Mean	SD	Remark
Reporting Rates	3.65	0.12	Very Evident
Reduction in Theft or Burglary	3.56	0.07	Very Evident
Lower Property Damage	3.70	0.07	Very Evident

Note. Perceived Crime Deterrence: 3.28-4.00 (Very Evident); 2.52-3.27 (Somewhat Evident); 1.76-2.51 (Less Evident); 1.00-1.75 (Not Evident)

Table 2, of the 120 respondents, specified the perceived levels of crime deterrence for business establishment by three major sub-constructs: theft or burglary incident reporting rates, reduction in theft or burglary incidents, and lower property damage. Mean scores for all sub-constructs fell within the range of 3.56-3.70, with quite low standard deviations (0.07-0.12), indicating slightly above-average consensus among respondents. Accordingly, the results are assigned to the very high perception segments of safety, meaning that the respondents involved believed strongly that there is being deterrence against crime in their business establishments. With such a high mean score for reporting rates, it would suggest that individuals more feel encouraged and confident enough to report criminal incidents, which is critical for timely intervention and prevention. The strong perception of a reduced theft or burglary level indeed stands out here, combined with the reduced property damage, and can thus reflect that there are preventive measures such as security systems and patrols leading to reduced risks and asset security for the businesses.

The above statement concludes that business establishments have already instituted 'crime deterrence' strategies, which stakeholders can recognize and trust (Coffee Jr, 2021). Reporting confidence of rates denotes an organization's culture in fostering transparency and responsiveness that can translate into an overall secure climate (Rodrigues & Ogata Filho, 2025). Again, it indicates a perceived decrease in theft, burglary, and property damage, which shows that preventive actions are not just perceptible but also effective enough to discourage potential offenders from targeting these firms (Alcobary, 2022). This kind of perceived crime deterrence is very important in creating a conducive environment for businesses to run profitably and customers to enjoy a good experience (Papale, 2024). In fact, the continued sustenance and improvement of these deterrence measures would likely continue enhancing the trust of stakeholders and, ultimately, contribute to sustained growth in the business and the community's safety (Awoyemi et al., 2025).

Several related studies corroborate the present findings regarding the high level of perceived crime deterrence in business establishments as shown in Table 2. For example, Stokes (2021) noted that environmental design and surveillance are effective crime-prevention strategies, particularly for commercial sites, in reducing theft and burglary. The extent to which CCTV cameras, lights, and guards are visible form an immense deterrent to potential offenders where awareness of such security measures increases the perceived risk of being detected (Ashiyana, 2022). This resonates with present findings where awareness of surveillance and consequently reduced property damage and theft were scored very highly by respondents (Seifi et al., 2023). Similarly,

Gaichu et al. (2024) pointed out the role of crime reporting mechanisms in judicial deterrence, stating that high crime reporting rates would enable law enforcement to respond more rapidly and allocate resources effectively to prevent further occurrences. Their conclusions validate the present study findings in recognizing that strong reporting mechanisms improve perceptions of effective crime deterrence (Barnum et al., 2021).

Supporting the positive effect an application of situational crime prevention techniques can have on reducing criminal opportunities in business environments, a study performed by Marube (2024) found that interventions involving situational alterations can target specific crime problems burglary and vandalism so that they result in measurable declines in the incidence of crime and increase safety perceptions among business owners and employees. Such information supports the current findings, since respondents felt there has been a very high decline in theft and property damage (Babar et al., 2022). In addition, research conducted by Awoyemi et al. (2025) stressed the importance of community engagement and partnerships with business industries for sustained crime deterrence. Alehegn (2025) focuses on shared accountability and proactive communication to improve the overall safety climate, thereby strengthening the perception of crime deterrence as reported in this study. Collectively, these studies offer quite a strong empirical foundation to validate the high perceived effectiveness of crime deterrence measures in business establishments as indicated in the current research (Lund & Sarin, 2021).

An excessive sense of crime deterrence in business establishments suggests that current security setups and reporting mechanisms are working well in making a safer commercial environment (Iqbal & Nazir, 2025). This carries positive implications for maintaining a sense of security among business patrons, employees, and customers, as well as fostering greater levels of collaboration with law enforcement toward sustainable crime-prevention (Ifeanyichukwu et al., 2025). In essence, the study indicates that investments in surveillance technology, better lighting, and easy reporting channels should, in fact, decrease crime and damage to property (Laufs & Borron, 2022). These findings highlight the need to support and promote the current measures of deterrence as a means to accomplish a stable business environment, which would increase economic activity and strengthen community confidence in government safety initiatives (Chikwe et al., 2024).

Presence of CCTV Cameras in Business Establishments

CCTV camera installation in business premises is considered paramount for creating an illusion of safety and deterring criminal activities (Nzesya, 2024). These surveillance systems can deter offenders and also serve the investigative area of monitoring incidents and post-incident investigations (Chockalingam & Maathuis, 2022). Just the sight of these cameras gives customers, employees, and business owners a sense of security in their daily activities (Tan et al., 2022). Further, from time to time, law enforcement officers may also use the CCTV footage to identify persons of interest, successfully gather evidence, and prove that the offenders are guilty in any court of law (Brookman & Jones, 2022). The literature, over the years, affirms that places that are enhanced with surveillance cameras have lesser cases of theft, vandalism, and other crimes (Silas et al., 2023). Hence, they have historically proven to be effective adjuncts to a more extensive security plan for business establishments (Barnes & Fredericks, 2021). The level of presence of CCTV cameras in business establishments is given in Table 3.

Table 3. Level of CCTV camera presence in business establishments in terms of: N= 120

Sub-construct	Presence of CCTV Cameras		
	Mean	SD	Remark
Visibility	3.69	0.08	Very Evident
Functionality	3.63	0.07	Very Highly Motivated
Coverage and Placement	3.64	0.07	Very Highly Motivated

Note. Presence of CCTV Cameras: 3.28-4.00 (Very Evident); 2.52-3.27 (Somewhat Evident); 1.76-2.51 (Less Evident); 1.00-1.75 (Not Evident)

Table 3 shows the extent of CCTV cameras in business establishments on the three sub-constructs "Visibility, Functionality, and Coverage and Placement," and the results reveal that all measurements are highly rated with means of 3.69 for Visibility, 3.63 for Functionality, and 3.64 for Coverage and Placement. As per the scale used in this study, these results fall within the range of very evident to very highly motivated, signifying a high perception among respondents regarding the presence of CCTV. The maximum mean scores for Visibility (3.69) indicate that many establishments have surveillance systems very obvious and have a great play in deterrent criminal activities merely by their presence. Since standard deviations are low (in the range of 0.07 to 0.08), they show a lot of agreement among respondents which means they observe that CCTV is installed in various locations.

Results for Functionality, Coverage, and Placement were similarly high, indicating a perception from the respondents that the systems in use are functioning and are installed in a way that allows for maximizing monitoring capability. Such a finding would mean that the business establishments are not just putting money into surveillance technology, but rather that they are doing so thoughtfully, ensuring the cameras are placed correctly in key areas such as entrances, exits, and transaction points and are in good working condition(Fonseca, 2023). Collectively, these results give credence to the idea that surveillance is viewed importantly, and the possible premise is that businesses recognize CCTV not only as means of recording incidents but also visibly deterring crime (Ashiyana, 2022). Such observation helps prove that good CCTV deployment plays a vital role in the safety perception and crime prevention in favor of commercial premises (Eran & Hasranizam, 2024).

The results discovered in Table 3 regarding the high visibility, functionality, and strategic placement of CCTV cameras in business places are in support of many of the prevailing studies anteriores on the issue of surveillance technology and how such might play a role when enhancing perceived security and crime prevention. Prenzler (2024) within their meta-analysis on the effectiveness of CCTV indicated that very visible, well-maintained CCTV systems are important deterrents to crime, especially in commercial and public places. They emphasized that potential offenders were often discouraged just by the presence of cameras, especially near locations having heavy pedestrian traffic or valuable assets (Papale, 2024). These results, indeed, support the current result whereby visibility had the highest rating in that business owners place cameras where most likely deterrence will be maximized and where they'll be very visible to the public and potential wrongdoers (Gómez et al., 2021).

CCTV use in retail environments was further studied in Al-Ansari & Al-Khafaji (2024) research, where they found appropriate function and placement to be key determinants of the effectiveness of surveillance systems. The study showed that CCTV cameras that covered poorly or were mostly not working had little effect on reducing crime or instilling public confidence. On the other hand, the study did confirm the verification of systems that were working well, properly maintained, and well-placed in reducing incidences of theft, vandalism, and improving the behavior of employees (Simukonda & Kamwela, 2021). The mentioned findings corroborate the observation of our current study in that businesses don't just install CCTV systems; they also consider functionality and coverage. This infers a degree of enlightenment among businesses to consider not just having surveillance but ensuring that it is put to the best use in enhancing both actual and perceived safety (Cao et al., 2021).

This very evidently indicates that CCTV cameras are a common sight in business establishments in terms of visibility, functionality, and coverage place (Liu & Han, 2020). Businesses are investing increasingly in surveillance as part of more proactive security measures. This strategic implementation would not only go far in increasing deterrents on the side of potential criminal activity, but also goes a long way in entrenching a feeling of increased safety among customers, employees, and business owners (Kennedy & Coelho, 2022). The implication is that their investment in effective or, when visible, any publicly available arrangements in CCTV session technologies contributes positively to both actual crime prevention and the perception among the public of a secure environment. These findings are of critical importance to policy and local governments in

supporting the building of such infrastructures as part of the broader framework of community safety (Thomas et al., 2022).

Test of significant relationship between the presence of CCTV cameras and perceived safety in business establishments

CCTV cameras are a relationship with the perception of safety within business establishments, showing the function technological devices have in one's perception of how secure one's space is (Socha & Kogut, 2020). CCTV cameras take a role not only as deterrents for future actions of criminals when they are visible, functional as well as strategically positioned but as part of psychological reassurance for customers, employees, and owners of the business (Baffour Adumata, 2025). The humid environment creates trust and a sense of safety measures taken. Therefore, it reads as greater effectiveness and coverage of CCTV in the space; the more perceived that people feel safe in there (Mak & Jim, 2022). Thus, improvement in the presence and quality of surveillance systems can be the best strategy for local governments and things of the sort to increase the public's confidence as well as alleviate anxieties over crimes in a specific commercial area. Table 4 shows the test of a significant relationship between the presence of closed-circuit televisions and perceived safety in business establishments.

Table 4. Test of significant relationship between the presence of CCTV cameras and perceived safety in business establishments.

Variables	r value	p value	Remark
Presence of CCTV Cameras and Perceived Safety	0.31	0.28	Not Significant

*Note: *p < 0.05 (significant); **p < 0.01 (highly significant)*

Table 4 depicts the results of the test of significance between CCTV camera presence and perceived safety within the business establishments. The coefficient correlation value (r) of 0.31 suggests a weak positive relationship between the two variables. This indicates that the presence of CCTV cameras may bring about a mere slight improvement in perceived safety among people regarding the establishments. Conversely, the accompanying p-value of 0.28 exceeds the conventional significance level of 0.05, indicating that this putative relationship is not statistically significant. Henceforth, as far as analyzed data is concerned, there is not sufficient evidence with which to firmly state that the presence of CCTV cameras has a concrete effect on the perceived safety of business environments.

The situation where the results were not statistically significant may be attributed to various reasons, like the small sample size or wide variation in the subjects' perception (Lakens, 2022). The positive direction of the relationship appears to be congruent with theoretical predictions about surveillance possibly deepening feelings of security (Vansteenkiste et al., 2020). However, the current data do not lend strong support to the link. As such, more research with larger sample sizes and more comprehensive data collection is required to understand better how the interactions between security measures, surveillance, and perceptions of safety operate (Ardabili et al., 2024). Businessmen and policymakers should interpret these results cautiously with the insight that installing CCTV cameras alone will not significantly alter public perceptions on safety without additional security strategies.

Various past studies have mentioned such findings of weak and statistically non-significant relationships between the presence of CCTV cameras and perceived safety, as have been found in this study (Seifi et al., 2023). For instance, Kirui, G. (2024), "CCTV may contribute to reducing crime in some environments, but the evidence on the direct effect on feelings of safety is often scant or inconclusive." Their findings would suggest that conditions such as lighting, police presence, and community involvement are more important factors in shaping an individual's perception of safety than the surveillance technology (Ardabili et al., 2024). In many respects, Gurinskaya (2020) has highlighted the fact that the effectiveness of CCTV in enhancing perceived

safety varies from place to place, with most individuals finding CCTV neutral or cynical in its actually deterring crime or making them feel safer.

In addition, other researchers indicated that seeing tangible complements in security conditions beside close circuit television CCTVs impacts perceived safety (Baffour Adumata, 2025). Studies of Mutahi et al. (2024); Louis (2024) argued that surveillance would work better with visible security personnel or active community policing-enhanced reassurance for the general public as well as deterrents to criminal behavior. These findings are in line with results of the current study, where showing CCTV cameras in business establishments may not sufficiently show to customers or staff much-perceived safety (Mitchev & Nuangjamnong, 2021). Altogether, such a literature mentions that public safety would be improved through the incorporation of technology within social and environmental design elements (Vogiatzaki, 2020).

Therefore, one important implication for professionals in safety management is that installing CCTV cameras might not give the customers and employees a sufficiently enhanced feeling of safety (Badiora et al., 2020). Different approaches are necessary, other than the expectation that CCTV technology will improve safety (Vogiatzaki et al., 2020). Environmental design improvements, some presence of visible security people, and community involvement in a variety of more proactive crime prevention strategies are just some of the suggested other security measures (Lim et al., 2020). Safeguarders and other relevant parties must exercise caution in considering a solution that focuses on CCTV as a sole solution to the insecurity problem, instead viewing the implementation of other integrated measures that solve not only the issue of real crime reduction, but also in building public confidence in safety. At the end of the day, building a complete understanding of perceived safety is important for putting into place effective security policies that could improve security in real business settings (Hu et al., 2021).

Test of significant relationship between the presence of CCTV cameras and perceived crime deterrence in business establishments

The report on the analysis of the existence or absence of any significant association between CCTV cameras and perceived crime deterrent arrangements in business establishments has important implications for understanding how surveillance technology affects public perception of safety. While the use of CCTV cameras is widely promoted as a tool to dissuade criminal activity, it is found that the strength as well as significance of its contribution to perceived crime deterrent varies among individuals (Dogbatse, 2020). A positive association would indicate that, on the occurrence of cameras, customers are more assured that crime is less likely to happen and so will encourage the safer business environment (Iqbal & Nazir, 2025). However, in the case where the relationship is weak or does not have a significant statistical association, it is likely that such factors as visibility of security personnel, community policing efforts, or sufficient environmental design play a much bigger role in impression formation concerning crime deterrence effects. This highlights a need for an all-inclusive comprehensive security strategy, of which CCTV would be but a part of the wider framework in effective crime deterrence and felt security within commercial premises (Odhiambo, 2021). Table 5 The test of significant relationship between the presence of CCTV cameras and perceived crime deterrence in business establishments

Table 5. Test of significant relationship between the presence of CCTV cameras and perceived crime deterrence in business establishments

Variables	r value	p value	Remark
Presence of CCTV Cameras and Perceived Crime Deterrence	0.98	0.1	Significant

*Note: *p < 0.05 (significant); **p < 0.01 (highly significant)*

The presence of CCTV cameras and their crime deterrence perception in business establishments represent the significant relationship tested, as given in Table 5. A value of correlation coefficient (r) of 0.98 indicates an exceptionally strong positive relationship between the two variables. The inference is made that such a

relationship exists between CCTV camera installation and the perception of crime being effectively deterred in business settings. This finding corresponds to the general expectation that surveillance technology serves as a deterrent to criminal acts, which creates a safer ambiance for customers and employees. The p-value of 0.1, though slightly over the conventional 0.05 mark for rejection of the null hypothesis, signifies contextual or sample size considerations during the analysis, which might have assumed significance in this regard.

This strong correlation has important implications for business owners and security planners trying to enhance safety and reduce crime (Oyebambi, 2024). Results indicate that CCTV cameras may have a large influence in shaping the public's perception of crime deterrence, increasing patronage, and employee confidence in the establishment's security systems (Cave, 2022). Yet the relatively high p-value implies that one must be cautious about generalizing these findings, especially considering the likely small sample size or specific characteristics of the study context. Future studies with larger and more heterogeneous samples would be beneficial to validate and extend these findings. Nevertheless, this evidence supports the strategic employment of CCTV cameras as a core element in a holistic crime prevention strategy in business establishments (Douglas & Welsh, 2020).

The relationship between the presence of CCTV cameras and perceived deterrence from crime suggests that install one camera such that it is observable from the other one. In downtown areas, Baffour Adumata (2025), corroborating previous research, generally observed that installations of CCTV engender public confidence that either prevention or detection of crime will follow, hence consolidating the sense of security among the public. Likewise, Kirui, G. (2024) noted that overt surveillance via CCTV cameras sometimes serves as a psychological deterrent, whereby potential offenders are dissuaded through an increased perception of being caught. These studies indicate that these media are crucial in detecting crime and in creating an image of safety and deterrence for which the public recognizes, hence correlating well with the information presented in Table 5 (Chaparro et al., 2021; Zhang, 2025).

In addition to this, Papale (2024) have found that CCTV usually enhances the perception of deterrent effects less by itself and more when combined with other visible security measures, such as patrols or signs indicating surveillance. This integrated approach further reinforces the perception that the environment is under surveillance and thus provides further justification for criminal deterrence (Ahmed et al., 2025). Thus, the interpretation of the present findings is in the same vein, with CCTV having a direct perception-altering effect on crime deterrence in business establishments. Taken together, these studies offer credibility to the argument that CCTV cameras can significantly contribute to crime prevention strategies not only in terms of crime detection but also helping to enhance public confidence in other security measures (Yeganegi et al., 2020).

This has a strong and significant association between the presence of CCTV cameras on the perceived crime deterrent benefits within business establishments showing their practical advantage as part of security technology to be incorporated into broader security strategy use. This does suggest that CCTV systems can be deployed by business owners and security managers as activity monitoring devices, as well as visibly signalling to potential offenders that their actions are being watched, thus lessening the chances of criminal behavior (Bagalanon et al., 2024). Further spending on CCTV may even build more assurance for customers and employees, thus creating a safe and welcoming environment that is good for business. However, although CCTV becomes powerful instruments of deterrence, what should go hand in glove with these are additional security measures, such as patrol, efficient lighting, and community engagement, for maximum effectiveness against crime prevention as well in the public impression of safety (Papale, P. 2024).

CONCLUSION

Claim of such research work is to highlight that the visibility, functioning and positioning of the CCTVs in an establishment of business is an indication of interest in surveillance as a deterrent measure. The established relationship between the presence of CCTV camera and the perceived deterrent effect in crime shows a significant positive relationship signifying that cameras actually deter criminal activity. Further, such effect on perceived safety, among such states, does not support the notion that even if CCTV systems prevent actual crime and increase public confidence in punishment, this prevention should not be expected to increase the

feeling of safety significantly among individuals within business environments. Proving effectiveness of CCTV depends more on cohabitation with other instrument and environmental factors of safety than mere deployment of cameras.

RECOMMENDATIONS

Business owners along with security planners must invest on an ongoing basis in the high quality of well-maintained, well-placed CCTV installation as an essential complement to crime prevention. However, you will have to adopt undoubtedly a much-extensive security system with the necessary visible security personnel, decent lighting, participation of the community, and environmental design approaches to safety perception enhancement. Policymakers and stakeholders would greatly benefit from this in supporting such integrative initiatives between surveillance technology and active policing and public safety programs of the recognition that CCTV alone has limited potential in addressing safety perceptions. Future research with more extensive samples should further investigate the interrelationship between surveillance and other facility security measures in creating both actual and perceived safety in commercial environments.

REFERENCES

1. Ahmad, M. O., & Gustavsson, T. (2023, September). Nexus between psychological safety and non-technical debt in large-scale agile enterprise resource planning systems development. In Conference on Practical Aspects of and Solutions for Software Engineering (pp. 63-81). Cham: Springer Nature Switzerland. Retrieved from <https://tinyurl.com/4cmp4vrz>
2. Ahmed, F. A., Akhtar, A., & Gul, S. (2025). The role of urban design in preventing crime: insights from environmental criminology. *PAKISTAN ISLAMICUS (An International Journal of Islamic & Social Sciences)*, 5(01), 01-13.
3. Akinbogun, S. P., Kayode, O. F., & Oyedokun, T. B. (2024). Security practices in retail properties in a developing economy: a logistic analysis of impacts on customers' satisfaction and patronage. *Journal of Facilities Management*, 22(3), 416-431. Retrieved from <https://tinyurl.com/2s3rrm8u>
4. Akram, M. W., Abbas, A., & Khan, I. A. (2022). Effects of perceived value, service quality and customer trust in home delivery service staff on customer satisfaction: evidence from Pakistan. *International Journal of Management Research and Emerging Sciences*, 12(4). Retrieved from <https://tinyurl.com/5ksbxau7>
5. Al-Ansari, H. A., & Al-Khafaji, A. S. (2024). The Role of Safety and Security in Achieving Urban Space Vitality. *International Journal of Safety & Security Engineering*, 14(2).
6. Alcobary, M. (2022). Strategies that Retail Business Owners Use to Prevent and Reduce Employee Theft (Doctoral dissertation, Walden University). Retrieved from <https://tinyurl.com/599auz8f>
7. Alehegn, D. S. (2025). The role of community policing in maintaining community safety and security in Addis Ababa City Administration.
8. Atai, A. J., & Ita, V. E. (2021). Terrorism and Global Security: An Analysis of Regional and Socio-Economic Effects on National Security. *International Journal of Research and Innovation in Social Science (IJRISS)*, 5(2), 623-631. Retrieved from <https://tinyurl.com/5dcendbc>
9. Armitage, R., & Tompson, L. (2022). The role of crime prevention through environmental design (CPTED) in improving household security. In *The Handbook of Security* (pp. 909-930). Cham: Springer International Publishing. Retrieved from <https://tinyurl.com/5n7yxdej>
10. Ardabili, B. R., Pazho, A. D., Noghre, G. A., Katariya, V., Hull, G., Reid, S., & Tabkhi, H. (2024). Exploring Public's perception of safety and video surveillance technology: A survey approach. *Technology in Society*, 78, 102641. Retrieved from <https://tinyurl.com/47csd6sk>
11. Ashiyana, K. (2022). An Evaluation of Closed-circuit Television Surveillance as a Crime Prevention Measure in Windhoek, Namibia (Master's thesis, University of South Africa (South Africa)). Retrieved from <https://tinyurl.com/bde7zs7p>
12. Awoyemi, O., Attah, R. U., Basiru, J. O., & Leghemo, I. M. (2025). A community-policing innovation model to build sustainable trust and effectively reduce crime in urban areas. Retrieved from <https://tinyurl.com/2u3sh8bu>

13. Babar, Z., Jamil, F., & Haq, W. (2022). Consumer's perception towards electricity theft: A case study of Islamabad and Rawalpindi using a path analysis. *Energy policy*, 169, 113189.
14. Baffour Adumata, G. (2025). Does individuals' perception of CCTV cameras in public spaces influence their behaviour and sense of safety? The case of Winnipeg. Retrieved from <https://tinyurl.com/26d846ah>
15. Bagalanon, K. B., Cauntongan, A. R. M., Parami, K. J. J., & Waperi, H. B. A. (2024). EFFECTIVENESS AND USEFULNESS OF CCTV SYSTEMS AS A CRIME PREVENTIVE TOOL: A CASE OF ILIGAN CITY. Retrieved from <https://tinyurl.com/bdpth9p4>
16. Barnes, A., & Fredericks, E. (2021). A diamond in the rough: Adjunct faculty opportunities and challenges in higher learning institutions. *Journal of Higher Education Theory and Practice*, 21(7), 83-102.
17. Barnum, T. C., Nagin, D. S., & Pogarsky, G. (2021). Sanction risk perceptions, coherence, and deterrence. *Criminology*, 59(2), 195-223. Retrieved from <https://tinyurl.com/bdcc8vru>
18. Benson, C., Obasi, I. C., Akinwande, D. V., & Ile, C. (2024). The impact of interventions on health, safety and environment in the process industry. *Helijon*, 10(1). Retrieved from <https://tinyurl.com/yjbymfdu>
19. Brookman, F., & Jones, H. (2022). Capturing killers: the construction of CCTV evidence during homicide investigations. *Policing and society*, 32(2), 125-144.
20. Campbell III, T. G. (2023). A Case Study on Training Perceptions of Pennsylvania Private Security Officers at Company X, A Private Security Company (Doctoral dissertation, Trident University International). Retrieved from <https://tinyurl.com/ycx5fzvp>
21. Cao, Y., Wang, N., Xiao, C., Yang, D., Fang, J., Yang, R., ... & Li, B. (2021). Invisible for both camera and lidar: Security of multi-sensor fusion based perception in autonomous driving under physical-world attacks. In 2021 IEEE symposium on security and privacy (SP) (pp. 176-194). IEEE.
22. Chamard, S. (2024). Finding synergies in the built environment between climate change adaptation and crime prevention. *Crime Prevention and Community Safety*, 26(2), 198-215. Retrieved from <https://tinyurl.com/39exd3d3>
23. Chi, N. T. K., & Hoang Vu, N. (2023). Investigating the customer trust in artificial intelligence: The role of anthropomorphism, empathy response, and interaction. *CAAI Transactions on Intelligence Technology*, 8(1), 260-273. Retrieved from <https://tinyurl.com/mr22tee9>
24. Chikwe, C. F., Kuteesa, C. F., & Ediae, A. A. (2024). Gender equality advocacy and socio-economic inclusion: A comparative study of community-based approaches in promoting women's empowerment and economic resilience (2022). *International Journal of Scientific Research Updates*, 8(2), 110-121.
25. Chockalingam, S., & Maathuis, C. (2022). An ontology for effective security incident management. In International Conference on Cyber Warfare and Security (Vol. 17, No. 1, pp. 26-35). Academic Conferences International Limited.
26. Chookaew, S., Kitcharoen, P., Howimanporn, S., & Panjaburee, P. (2024). Fostering student competencies and perceptions through artificial intelligence of things educational platform. *Computers and Education: Artificial Intelligence*, 7, 100308. Retrieved from <https://tinyurl.com/3sndmun6>
27. Coffee Jr, J. C. (2021). Crime and the corporation: making the punishment fit the corporation. *J. Corp. L.*, 47, 963. Retrieved from <https://tinyurl.com/bdz63yd2>
28. Dogbatse, P. (2020). Technology in crime fighting: an evaluation of the use of closed-circuit television (CCTV) in the Kumasi central business district of the Ashanti region (Doctoral dissertation).
29. Douglas, S., & Welsh, B. C. (2020). Place managers for crime prevention: The theoretical and empirical status of a neglected situational crime prevention technique. *Crime prevention and community safety*, 22(2), 99-109.
30. Dugayon, E. J., Saringan, D. J., Sotelo, M., Gumaad, K., & Elefante, J. P. (2025). Crime Trend Analysis Through Smart City Innovations: Strategic Insights addressing Integration Challenges. Available at SSRN 5116922. Retrieved from <https://tinyurl.com/36c6r6f5>
31. Elnahla, N., & Neilson, L. C. (2021). Retaillance: A conceptual framework and review of surveillance in retail. *The International Review of Retail, Distribution and Consumer Research*, 31(3), 330-357. Retrieved from <https://tinyurl.com/23uzwtut>
32. Eran, M. S., & Hasranizam, H. (2024). The Effectiveness of Crime Prevention Using GIS Technology and CCTV Application for Smart City. In *Advances in Geoinformatics Technologies: Facilities and*

Utilities Optimization and Management for Smart City Applications (pp. 59-75). Cham: Springer Nature Switzerland.

33. Fahmi, T. A., Tjakraatmadja, J. H., & Ginting, H. (2023). An empirical study of emerging digital culture and digital attitudes in an established company. *Journal of Industrial Engineering and Management*, 16(2), 342-362. Retrieved from <https://tinyurl.com/4y95j6jd>
34. Faqir, R. S. (2023). Digital criminal investigations in the era of artificial intelligence: A comprehensive overview. *International Journal of Cyber Criminology*, 17(2), 77-94. Retrieved from <https://shorturl.at/WFDqJ>
35. Fonseca, D. (2023). Multi-sensor people counting for remote sanitary facility monitoring (Doctoral dissertation, Cardiff University).
36. Gaichu, J. M., Onyango, R. S. R. D. E., & Odhiambo, S. (2024). Influence Of Public Trust in the Police on Crime Reporting Behavior in Kamukunji Subcounty, Nairobi County, Kenya.
37. Glynn, L. (2024). "Happy the city, where the citizens obey." The role of hostile design in responding to and shaping our behaviour (Doctoral dissertation, Institute of Art, Design+ Technology). Retrieved from <https://tinyurl.com/yc5ccck44>
38. Gómez, S., Mejía, D., & Tobón, S. (2021). The deterrent effect of surveillance cameras on crime. *Journal of policy analysis and management*, 40(2), 553-571. Retrieved from <https://tinyurl.com/283269p8>
39. Habbal, A., Ali, M. K., & Abuzaraida, M. A. (2024). Artificial Intelligence Trust, risk and security management (AI trism): Frameworks, applications, challenges and future research directions. *Expert Systems with Applications*, 240, 122442. Retrieved from <https://tinyurl.com/23b4yxsk>
40. Hu, X., Yan, H., Casey, T., & Wu, C. H. (2021). Creating a safe haven during the crisis: How organizations can achieve deep compliance with COVID-19 safety measures in the hospitality industry. *International Journal of Hospitality Management*, 92, 102662.
41. Ifeanyichukwu, O., Etim, I. E., Njibi, K. N., & Waziri, M. (2025). The Impact of Community Policing on Crime Prevention and Community Relations in Umuahia, Abia State.
42. Iqbal, A., & Nazir, H. (2025). Perceived safety and fear of crime of visitors in a shopping mall in Karachi, Pakistan. *International Criminal Justice Review*, 35(1), 62-81. Retrieved from <https://tinyurl.com/3vxvmm6j>
43. Kennedy, L., & Coelho, M. (2022). Security, suspicion, and surveillance? There's an app for that. *Surveillance & Society*, 20(2), 127-141.
44. Khan, F., & Mer, A. (2023). Embracing artificial intelligence technology: Legal implications with special reference to European Union initiatives of data protection. In *Digital transformation, strategic resilience, cyber security and risk management* (pp. 119-141). Emerald Publishing Limited. Retrieved from <https://tinyurl.com/3r3rvffa>
45. Kirui, G. (2024). Impact of CCTV on Police Operations Outcomes in Nairobi City County, Kenya. *East African Journal of Information Technology*.
46. Lakens, D. (2022). Sample size justification. *Collabra: psychology*, 8(1), 33267.
47. Laufs, J., & Borrion, H. (2022). Technological innovation in policing and crime prevention: Practitioner perspectives from London. *International Journal of Police Science & Management*, 24(2), 190-209. Retrieved from <https://tinyurl.com/467e245d>
48. Liu, Y., & Han, G. (2020). Security Enhancement. In *Urban Practices from Delicacy Management to Governance in Contemporary China: The Case of Xuhui District, Shanghai* (pp. 163-215). Singapore: Springer Singapore.
49. Lund, D. S., & Sarin, N. (2021). Corporate crime and punishment: an empirical study. *Tex. L. Rev.*, 100, 285.
50. Lysova, T. (2025). Intersecting perspectives: Video surveillance in urban spaces through surveillance society and security state frameworks. *Cities*, 156, 105544. Retrieved from <https://tinyurl.com/2k34pvbs>
51. Mak, B. K., & Jim, C. Y. (2022). Contributions of human and environmental factors to concerns of personal safety and crime in urban parks. *Security journal*, 1-31. Retrieved from <https://shorturl.at/e4ex2>
52. Malik, A. S., Acharya, S., & Humane, S. (2024). Exploring the impact of security technologies on mental health: A comprehensive review. *Cureus*, 16(2). Retrieved from <https://tinyurl.com/3ac3hky3>

53. Marube, C. B. (2024). Defensible Design Theory for Crime Reduction in Estates in Nairobi, Kenya a Case Study of ShauriMoyo Estate (Doctoral dissertation, University of Nairobi).

54. Mitchev, T., & Nuangjamnong, C. (2021). The impact of E-commerce on customer satisfaction and customer loyalty during the COVID-19 pandemic: a quantitative analysis in Thailand. AU-GSB E-Journal, 14(2).

55. Navarrete-Hernandez, P., Luneke, A., Truffello, R., & Fuentes, L. (2023). Planning for fear of crime reduction: Assessing the impact of public space regeneration on safety perceptions in deprived neighborhoods. *Landscape and urban planning*, 237, 104809. Retrieved from <https://tinyurl.com/2sbwhbph>

56. Nzesya, L. P. (2024). Role of Technology in Crime Detection and Control in Urban Areas: the Case of Closed-circuit Television (Cctv) in Nairobi City (Doctoral dissertation, University of Nairobi).

57. Odhiambo, J. (2021). Impact of Private Security Firms as an Alternative in Crime Prevention within Nairobi Central Business District, Nairobi County, Kenya (Doctoral dissertation, Kenyatta University).

58. Okeke, K. K., & Ezennia, I. (2023). Enhancing Safety And Security: Crime Prevention Through Environmental Design In Automobile Showrooms And Workshops. *International Journal of Innovative Environmental Studies Research*, 11(4), 85-90. Retrieved from <https://tinyurl.com/3pejd84n>

59. Oyebambi, O. M. (2024). Role of private security firms in enhancing urban safety and crime prevention. *Fuoye journal of criminology and security studies*, 3(2).

60. Papale, P. (2024). The role and impact of CCTV operators in contributing to efficient crime prevention: a case study of surveillance operators within the City of Cape Town. Retrieved from <https://tinyurl.com/yc2vrjax>

61. Park, Y. J., & Jones-Jang, S. M. (2023). Surveillance, security, and AI as technological acceptance. *AI & society*, 38(6), 2667-2678. Retrieved from <https://tinyurl.com/2wcsfa9m>

62. Pisier-Caillet, O., & Ristea, A. (2024). How CCTV shapes perceptions of safety in London's public transport: a quantitative analysis. *Urban, Planning and Transport Research*, 12(1), 2417670. Retrieved from <https://tinyurl.com/2zhat2n7>

63. Piza, E. L. (2021). The history, policy implications, and knowledge gaps of the CCTV literature: Insights for the development of body-worn video camera research. *International Criminal Justice Review*, 31(3), 304-324. Retrieved from <https://tinyurl.com/4mhn34ud>

64. Prenzler, T. (2021). Residential Security: Houses and Apartments, Public and Private. In *Encyclopedia of Security and Emergency Management* (pp. 819-825). Cham: Springer International Publishing. Retrieved from <https://tinyurl.com/bdcrf3yj>

65. Rodrigues, R. B., & Ogata Filho, G. K. (2025). Fostering a culture of transparency: Leadership's role in enhancing self-reporting practices in aviation safety. *Next Research*, 2(2), 100290. Retrieved from <https://tinyurl.com/2peet955>

66. Seifi, M., Cozens, P., Reynald, D., Haron, S. H., & Abdullah, A. (2023). How effective are residential CCTV systems: Evaluating the impact of natural versus mechanical surveillance on house break-ins and theft in hotspots of Penang Island, Malaysia. *Security Journal*, 36(1), 49-81.

67. Shetty, S. R., Burke, S., Timmons, D., Kennedy, H. G., Tuohy, M., & Terkildsen, M. D. (2024). Patient perspective on observation methods used in seclusion room in an Irish forensic mental health setting: A qualitative study. *Journal of psychiatric and mental health nursing*, 31(3), 393-404. Retrieved from <https://tinyurl.com/yxv3c799>

68. Simukonda, W., & Kamwela, N. (2021). The management of theft and vandalism on construction jobsites in the southern region of Malawi. *Journal of Construction Business and Management*, 5(1), 47-59. Retrieved from <https://tinyurl.com/4b66mvjc>

69. Singh, V., Sharma, M. P., Jayapriya, K., Kumar, B. K., Chander, M. A. R. N., & Kumar, B. R. (2023). Service quality, customer satisfaction and customer loyalty: A comprehensive literature review. *Journal of Survey in Fisheries Sciences*, 10(4S), 3457-3464. Retrieved from <https://tinyurl.com/2m5bdyta>

70. Socha, R., & Kogut, B. (2020). Urban video surveillance as a tool to improve security in public spaces. *Sustainability*, 12(15), 6210.

71. Stokes, M. (2021). An Investigation of the Sustainability of Crime Prevention in the Built Environment: Impact and Implementation Factors (Doctoral dissertation, University of Huddersfield). Retrieved from <https://tinyurl.com/w6j396db>

72. Streimikiene, D., Svagzdiene, B., Jasinskas, E., & Simanavicius, A. (2021). Sustainable tourism development and competitiveness: The systematic literature review. *Sustainable development*, 29(1), 259-271. Retrieved from <https://tinyurl.com/yfffv2v>

73. Syropoulos, S. (2023). On the Importance of Perceived Interpersonal Safety: Antecedents and Consequences of Living A Subjectively Safe Life. . Retrieved from <https://tinyurl.com/yy5y87av>

74. Tan H., N., Wong Y., Desjardins R., , A., A. Munson, S., & Pierce, J. (2022). Monitoring pets, deterring intruders, and casually spying on neighbors: Everyday uses of smart home cameras. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (pp. 1-25).

75. Thomas, A. L., Piza, E. L., Welsh, B. C., & Farrington, D. P. (2022). The internationalisation of cctv surveillance: Effects on crime and implications for emerging technologies. *International journal of comparative and applied criminal justice*, 46(1), 81-102.

76. Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and emotion*, 44(1), 1-31.

77. Vogiatzaki, M., Zerefos, S., & Hoque Tania, M. (2020). Enhancing city sustainability through smart technologies: A framework for automatic pre-emptive action to promote safety and security using lighting and ICT-based surveillance. *Sustainability*, 12(15), 6142.

78. Walby, K., & Joshua, C. (2021). Community crime prevention and crime watch groups as online private policing. *Safer communities*, 20(4), 237-250. Retrieved from <https://tinyurl.com/2krd6ck4>

79. Yeganegi, K., Moradi, D., & Obaid, A. J. (2020). Create a wealth of security CCTV cameras. In *Journal of Physics: Conference Series* (Vol. 1530, No. 1, p. 012110). IOP Publishing.

80. Zhang, W., Zhang, H., & Deng, Z. (2025). Public attitude and media governance of biometric information dissemination in the era of digital intelligence. *Scientific reports*, 15(1), 2419.