NEIGHBOURHOOD CHARACTERISTICS AND THEIR INFLUENCE ON CRIME COMMISSION: A CASE STUDY OF THIKA WEST SUBCOUNTY, KIAMBU COUNTY, KENYA

KENNETH SETH OMONYA

A Thesis Submitted to the Graduate School in Partial Fulfillment of the Requirements for the Award of Degree of Master of Arts in Criminology, Security and Justice Studies of Chuka University

CHUKA UNIVERSITY

NOVEMBER, 2020

DECLARATION AND RECOMMENDATION

Declaration

This thesis is my original work and has not been presented for an award of a Diploma or conferment of degree in this or any other University.

Signature..... Date..15/11/2020..

Kenneth Seth Omonya
AM17/29167/17

Recommendation

This thesis has been examined, passed and submitted with our approval as University supervisors.

Signature..... Date..15/11/2020

Prof. Jospeter M. Mbuba
Purdue University, Fort Wayne

Signature..... Date..15/11/2020

Dr. Christopher N. Kiboro
Chuka University

CHUKA UNIVERSITY ★ RECEIVED 19 NOV 2020 P.O. Box 109-60400, CHUKA ★ DIRECTOR BOARD OF POSTGRADUATE STUDIES AND RESEARCH

DEDICATION

I dedicate this work to my wife, Carol Rael Wawire, my daughter Bethany Johari Nina, My son Ethan Emmanuel Omonya, My Mother Jentrix and My Father Clement for their steady fast support during my studies. My brother in-law Mr. Daniel Wawire and sister in-law Elizabeth for their encouragement. May Almighty God bless you and always fulfill the desires of your heart.

ACKNOWLEDGEMENTS

I sincerely give thanks and praise to the Almighty God for granting me the energy and good health to be able to complete this study successfully.

My gratitude goes to my supervisors Prof. Jospeter M. Mbuba and Dr. Christopher N. Kiboro for their tireless encouragement, guidance and inspiration at all levels in the preparation of this thesis. Their professional suggestions and comments enabled me to complete this work on time. Special thanks to Mr. Eston Warui for his immense support during the period of this study. I also owe gratitude to all lecturers who taught me during my coursework.

I appreciate my great friends and classmates; Paul, Rotich, Mosoti, Carolyne, Kamwara, Kariuki and Ali for their ideas, honest opinion and encouragement. Your ideas and appraisals helped me in accomplishing this thesis. I sincerely acknowledge, thank and appreciate my respondents for providing me with the required information without which this work would not have been completed.

I owe my special thanks to my Mum Jentrix Kimakasi and my Father Clement Omonya for the emotional and financial support they accorded me throughout my academic journey. I thank my lovely wife Carol Rael, my daughter Bethany and my son Ethan for their love, prayers and support. Special appreciation goes to Mr. Mathai S. Mukundi for his guidance and encouragement throughout this academic journey. I pray that my accomplishment of this academic journey becomes an inspiration to you to reach for even greater success.

ABSTRACT

There exists substantial evidence that a likely offender's decision making on places to offend depends on his or her assessment of the place. The assessment can be in terms of physical facilities, social features or guardianship measures that exist in such a neighborhood. Their existence in a geographical space makes it possible for a probable offender either to commit or not commit crime in such a place. In Kenya, few studies have been done on the influence of facilities, clusters, social and physical characteristics on crime commission. Thus, the primary purpose of this study was to investigate neighborhood characteristics and their influence on crime commission in Kiambu County. Thika West Sub-county in Kiambu County was purposively sampled because Kiambu County is ranked highest in crime prevalence for the year 2015 and 2016 in the country and ranked second for the year 2017 and 2018. For the four consecutive years, Thika West Sub-county accounted for the highest crime rates reported in Kiambu County. Additionally, the Sub-county police report for the year 2018 indicates that a few places accounted for the most crimes in Thika West Sub-county. The study adopted a descriptive survey design. The study was guided by rational choice theory and social disorganization theory. The target population was 245,820 subjects comprising of the business owners, security agents and area residents within the three locations of Thika West Sub-county. The study utilized a sample size of 400 respondents. Simple random sampling was used to select respondents that were included in the study sample. Three chiefs from the three locations and Deputy County Commander (DCC) were purposively included in the study sample as security agents. The instrument of collecting data was the questionnaire which was pilot-tested in Ruiru Sub-county. The instruments' reliability was tested using Cronbanch's alpha reliability coefficient. The correlation coefficient for physical facilities' reliability was 0.741, for guardianship was 0.743 and 0.720 for social interactions. Methods of analyzing data used for descriptive were frequencies and percentages. The inferential statistics were analyzed using categorical regression and linear regression analysis. The analysis was facilitated by the Statistical Package for Social Science (SPSS) version 21.0. It was found that there exists a positive significant relationship between physical facilities existing in the neighborhoods and crime commission. The study revealed that there exists a negative significant relationship between guardianship of a place and crime commission. It was concluded that there exists a negative significant relationship between social interactions of people and crime commission. The government as the manager in security sector benefits from the findings of this study as it is enlightened on various crime generators and attractors. This helps in resource allocations to the security sector in the fight against crime. Thus the National Security Council would be able to improve the existing policies in security sector. The findings of the study are beneficial to urban planners in planning for urban built environment. The findings of this study are valuable to researchers and scholars, as they form the basis of further research and assist in academic purposes by providing general knowledge in the area of crime commission.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

CBD	Central Business District
CCTV	Closed-Circuit Television
DCC	Deputy County Commander
IEBC	Independent and Electoral Boundaries Commission
KPS	Kenya Police Service
NACOSTI	National Commission for Science, Technology and Innovation
SPSS	Statistical Package for Social Sciences
SRIC	Security Research and Information Centre

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In a study of hotspots of crime and criminal careers, Sherman (1995) argues that, the commencement of crime in a neighborhood can start any time after its initial human occupation, or its "birth" as a societal space. Aksoy (2017) opines that, presence of social inconsistencies and incompatibilities brought about by an existing community, crime will constantly occur. Sherman (1995) posed the question: "Why would a neighborhood in which there had not ever been a burglary in seven years abruptly has one?" Moreover, Schmalleger (2012, pg.157) considered the question, "How is it that neighborhoods can remain the site of high crime and deviance rates despite a complete turnover in their population?"

The questions posed by Sherman (1995) and Schmalleger (2012) imply that there are features about a place as such to initiate or sustain crime. For instance, Amissah, Wemegah and Okyere (2014) found that Mamprobi district in Ghana which is 3.37km^2 in size had 54 crime incidents as compared to Dansoman district with 67 crime incidents which is 17.165km^2 in size. Taking the size into account, Mamprobi district is considered to have high crime rates. According to Amisah *et al.* (2014), Mamprobi district has a high population around its northern section and major roads and a crescent on the south. Additionally, the district is synonymous with workers and market lanes. Mccord and Ratcliffe (2005) in a study of a micro-spatial analysis of the demographic and criminogenic environments of drug markets in Philadephia, found that drug arrests crowded about 400 feet from the pubs establishments, check-cashing centers, transport stations and money lending shops. Features of the urban settings are therefore fundamental in explaining the onset of crime in specific neighborhood (Eck & Weisburd, 1995).

Sherman *et al.* (1992) established that about 15% of urban features such as pubs in the city of Milwaukee's accounted for over half of pubs crimes in that city. Brantingham and Brantingham (1995) had earlier found that public transit stations escalate the threat for crime victimization as they offer more targets for potential offenders by moving large number of susceptible targets along the stations. A study on safety ratings around 180 car park sites found that the more an area was depicted as enclosed by vegetation,

the lower the perceived safety (Shaffer & Anderson, 1985). This illustrates an increasing acknowledgement of the role of neighborhood characteristics in crime and crime regulation.

According to Johnson (2014), studies in criminology dealing with where crimes occur points out that, patterns of crime commission are not random. In an attempt to have a clearer understanding of such patterns from an individual offender, Johnson and Bowers (2004) draw upon theories of animal foraging who sought to understand the optimal patch choice as a principle concerning the animal forage. Johnson (2014) then concluded that, Optimal Patch choice is a complicated procedure concerned with the location an animal selects to feed from. For instance, Pyke (1984) asserts that, based on the presumption that an animal has little knowledge on the quality of patches, the choice it makes depends on the time available for feeding and its past experience based on the knowledge of the type of patch at its disposal. Johnson (2014) opines that, if an animal understands the innate value of the patches available, it may not spend much time sampling from other alternatives, and will avoid particular patches that are known to offer less reward. This applies to human beings as people, by nature, have shown some similar characteristics to animals.

The choice of where an animal decides to feed and its similarity to how offenders (human beings) decide where to offend is illustrated by Lancaster (2013). According to Lancaster (2013 pg. 14), "Between April 2011 and March 2012, police recorded more murders in Cape Town than in Johannesburg and Pretoria combined. This means that taking population into account, Cape Town residents are almost twice (1.8 times) more likely to be murdered than Johannesburg residents." Lancaster (2013) contends that, for a long period, violence and property crime rates were experienced in Mitchell's Plain which were the highest in the country then. From an analysis that considers population size, Cape Town residential areas of Nyanga, Khayelitsha, Gugulethu and Harare have continued to be the most murderous in Peninsula, as they have abnormally experienced high murder rates for over a decade (Lancaster, 2013). Offenders prefer these areas of Cape Town due prevalence of other crimes like robbery, alcohol and drug abuse brought by poor infrastructural development and existence of diverse races.

Brag and Weisburd (2010) contends that areas dealing with drugs may attract offenders in a place to acquire drugs. These law breakers may then engage in other types of crimes in the nearby neighboring drug areas. This is an indicative that certain areas entice offenders who visit with one intended goal like purchasing drugs, only end up in engaging in other offences like murder in the nearby locations. Criminals engage in criminal activities in places where criminal opportunities interconnect with their cognitively known places (Cragalia, Haining & Signoretta, 2004). This implies that there are characteristics about an area that brings about nonconformity.

According to South Africa Crime and Safety Report (2017), visitors are advised to avoid the densely populated locations often considered as township neighborhoods and normally located on the edges of most urban centers and central business district, among other areas. Security Research and Information Centre (SRIC) (2014), conducted a study on crime in selected urban slums in Kenya. The study showed that poor settlement planning that manifests in single entry and exit points and narrow paths render it almost impossible for the police to pursue crime suspects. The study also singled out some of the crime hotspots as most disreputable zones known for their physical features. These findings are evidence to a correlation between neighborhood characteristics and the incidences of crime. They justify the need for a concerted study to determine the influence of neighborhood characteristics on crime prevalence in Kenyan neighborhoods that possess the characteristics of Kiambu County, which ranked top in crime prevalence for the years 2015 and 2016 and second for the years 2017 and 2018 in the country (KPS Annual Crime Report).

1.2 Statement of the Problem

Incidences of crime exist in both rural and urban environments. The most worrying reality is that more criminal events have now permeated urban environments as compared to rural environments. But within any urban environment, there are areas that experience greater concentration of crime and others that experience relatively low concentration of crime. Even peaceful middle class neighborhoods in urban areas have started to get alarmed by criminal activities. Crime rates in certain areas of urban environment in Kenya have been on the rise, especially in towns such as Thika, Kiambu and their respective neighborhoods. In Thika West Sub-county, areas such as Kiandutu

are known for assaults, break-ins, arson and drug trafficking crimes. Mang'u flyover is famously known for robbery and mugging; Blue post at Sagana bridge road section; Makongeni (along Thika- Garissa highway), and Njomoko areas are considered to be insecure particularly at dark hours. Areas around Mount Kenya University, Majengo and along Garissa road have also become prime targets as they offer easy exit for the riders after hitting their targets. To enhance crime reduction rates, police programs focusing on the crime locations rather than the individual committing the crime have been developed in these areas. However, these areas are still facing myriads of challenges in terms of crime control. The link between neighborhood characteristics - physical facilities, guardianship measures and social interactions - and crime incidences is of great significance to security agency and local community in general. Without good information on the relationship, it becomes challenging to make decision on what kind of alteration should be made on the existing physical facilities to curb crime. Lack of good information on the existing guardianship measures in various neighborhoods, render it difficult to determine the type of guardianship measure to be applied in a specific neighborhood and particular facilities. Moreover, in the absence of better knowledge on how residents of particular neighborhood interact, it becomes hard to determine their role in crime control. Certainly, where there is criminal activities, development and liberty of movement are severely reduced and restricted. The current study therefore pursued to determine neighborhood characteristics and their influence on crime commission in Thika West Sub-county, Kiambu County.

1.3 Purpose of the Study

The main purpose of this study was to assess the influence of neighborhood characteristics on crime commission in Thika West Sub-county, Kenya.

1.4 Objectives of the Study

The study was guided by the following objectives:

i. To assess the influence of physical facilities existing within a neighborhood on crime commission in Thika West Sub-county, Kenya.
ii. To determine the influence of guardianship within a neighborhood on crime commission in Thika West Sub-county, Kenya.

iii. To establish how social interaction of people within a neighborhood influence crime commission in Thika West Sub-county, Kenya.

1.5 Hypotheses

The following hypotheses were tested at $\infty = 0.05$ significant level.

$H0_1$: There is no statistically significant relationship between physical facilities within a neighborhood and crime commission.

$H0_2$: There is no statistically significant relationship between guardianship of a neighborhood and crime commission.

$H0_3$: There is no statistically significant relationship between social interaction of people in a neighborhood and crime commission.

1.6 Significance of the Study

The study identified favorable and unfavorable conditions of physical facilities in a location, location guardianship, and social interaction that influence crime commission. This is beneficial to urban planners in planning for urban built environment. The findings are vital to the government as it is responsible for managing of the security sector having been enlightened on various crime generators and attractors. This assist in effective crime prevention resource allocations to the security sector. By identifying features that contributes to crime increase, the study was instrumental in providing a basis - based on the empirical findings – upon which crime prevention and management policy formulation and enhancement strategies in the country is founded. Thus enhancing the safety of people and their assets. The outcome of the study serves to provide new insights as to the crime typologies and their social and spatial distribution. This is valuable to researchers and scholars, as they form the basis of further research and assist in academic purposes by providing general knowledge in the area of crime commission.

1.7 Scope of the Study

The study was conducted in Thika West Sub-county, Kiambu County, Kenya. The study involved business persons, security agents (Chiefs, Police Officers and D.C.C.), and area residents totaling up to 245,820 subjects within Thika West Sub-county. Thika West Sub-county was purposively sampled because from the Thika West police

division office 10% of the places accounted for 55% of the crime reported in 2018. This was the highest as compared to crime data from other police divisions within the County. Additionally, Kiambu County is ranked highest in crime prevalence for the years 2015 and 2016 in the country (KPS Annual Crime Report, 2015; 2016). Furthermore, according to KPS Annual Crime Report for the years 2017 and 2018, Kiambu County was ranked second with 5,603 and 6,932 cases respectively. According to KPS Annual Crime Report (2018), Thika West Sub-county accounted for 40% of the crimes reported within Kiambu County. The study focused on how physical facilities, guardianship and social interaction of people in a place influence crime commission. The study involved all respondents regardless of how long they had lived within the Sub-county since crime could happen to anyone at any time.

1.8 Limitation and Delimitation of the Study

Participant observation could be the best method in obtaining the desired data. As it would enable the researcher to observe and record the various types of crime attractors and generators. It would also enable the researcher to observe and examine the various ways of guardianship, social interactions and types of physical facilities and their distribution in the neighborhoods. However, due to time constraints and uncertainty of when crime could occur, participant observation was not practicable. Therefore, the study utilized questionnaires to collect data. Some respondents were semi-illiterate and they could not understand the items of the questionnaire. Therefore, the questions were interpreted to them. Besides, some respondents were reluctant to answer the questions, as they feared being spied on. Hence, they were assured of a high level of confidentiality as the information provided was only to be used for the purpose of the study.

1.9 Assumptions of the Study

i. Poor planning design and management of town neighborhoods placed the residents into security risks of death, injury and even property loss.
ii. A better informal settlement design and plan will ensure a defensible space, and natural surveillance.
iii. The study was based on the assumption that the respondents would be willing to provide honest responses.

1.10 Operationalization of Terms

Crime: is an action that goes against the expectation of the existing rules and regulations. They included; crime against person (Assault, murder, rape, and abduction) crime against property (burglary, vandalism, graffiti, theft, robbery) and crime against society (drug peddling, gambling, Drunkenness, prostitution)

Facilities: refer to physical features such as the built and natural environments where their presence or absence functions as a way of attracting or discouraging crime.

Guardianship: refer to the monitoring or management of place in such a way to encourage or deter crime.

Neighborhood: refer to a geographical space, area or place that hosts people, physical facilities and people's daily activities such as residential activities, commercial, education activities among others.

Neighborhood characteristics: refer to an area whose physical features and peoples' way of life act as a catalyst to occurrence of crime or serve as crime deterrence.

Offender: is a person who violates the law.

Place: It is the location in space where crime takes place.

Potential Offender: it is any individual with a motive and ability to offend, but hasn't done so yet.

Social interaction: It is a process where individuals in a neighborhood respond to one another through communication, participation and organization to encourage or discourage crime.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of Place Facilities, Place Guardianship and Social Interaction of People

Crime prevention through environmental design (Jeffrey, 1977), situational crime prevention (Clarke, 1997) and environmental criminology have highly been supported by empirical research signifying that interaction between the social and the physical facilities and its guardianship in a geographical space are instrumental in encouraging or discouraging crime. According to Erickson (2014), legal and illegal activities accommodated at a place can offer risks of crime. Caplan and Kennedy (2011, pg. 13), contend that vulnerability of a place to crime risk "is a role of the combined spatial influence of criminogenic characteristics in an entire landscape."

Criminogenic characteristics at a place can be termed as crime initiators and generators. Bernasco and Block (2011) contend that crime initiators are in locations that the public can easily access. Such areas may include stadia, shopping centers and public transport stations. According to Yue, Zhu, Ye and Guo (2017), these are places where people congregate and bustling multitude and deficiency of self-protection when accessing such places offer opportunities for offenders. With regard to crime generators, Bernasco and Block (2011) opines that such locations offer opportune chances well suited for motivated offenders to locate attractive and poorly guarded targets/victims, but they do not necessarily bring together large numbers of persons at a single point in time. For instance, retail shops, *Mpesa* shops (mobile money transaction outlets) and locations where cash transactions occur are ideal for shoplifting and robbery. As majority of property offenders prefer items that are detachable, concealable, accessible and disposable (Wellsmith & Burrell, 2005). Some items found in retail shops and cash satisfies these requirements.

In a study to determine the crime pattern of burglary in Cambridge UK, Brantingham and Brantingham (1984) found that, the highest crime rate areas were social places like restaurants, youths and sports clubs. Places such as bars and nightclubs in close vicinity and with concurrent closing times can produce multitude effects that lead to disturbances, violence and criminality (Rossmo, 1994). Dutkowska and Leitner (2017)

established that land use types strongly attract crime at that place. According to them, just like land use types are restricted to their immediate environs, so does crime. This is in agreement with Groff (2011) who found that alcohol consumption locations were associated with escalated crime rates in the surrounding area that stretched between 244 meters to 366 meters.

According to Kenya Police Service Annual Crime Report (2016), majority of the hard drugs peddlers were placed under arrest at the Jomo Kenyatta International Airport, border points and along the Kenyan coastline. This offers possible clues on where offenders chooses to enter or exit with their contrabands. This is also an indication that offenders frequently function in a rational way as they prefer choices that necessitate the least possible effort while offering the highest benefits, and provide the lowest risks (Taylor & Harrell, 1996). Smuggling of illegal imports had been flourishing along the Kenya-Somalia, Kenya-Uganda and Kenya-Tanzania borders (Kenya Police Service Annual Crime Report, 2015). Moreover, Kenya Police Service Annual Crime Report, (2014) indicates that permeable borders along the northern and eastern Kenya had been branded as transit channels for the militia from Somali. According to the reports, the militia targeted the locations frequented by tourists along the coastal areas, security officers, public transport vehicles, religious places, shopping malls among other crowded locations. These reports indicate the strong influence of facilities found in an area and their influence on crime. That is, some places comprise certain features of locations that produce suitable or "ecologically advantageous" situations for crime (St. Jean, 2007).

Madensen (2007) depicts how place management influences an offence. For instance, installation of street lighting on dark streets reduces the chances of crime as they make public areas more physical reachable and visible to the public (Hoyt, 2005). This will in turn help security officers who are on patrols be more likely to observe and report offending behavior on well-lit street places. Within this context, dark alleys are evidence of crime and deviance and reduced crime control. This in agreement with Nairobi Crime Survey Report (2001) which alludes to absence of street lights as one of the major causes of high crime rates in Nairobi, Kenya. But one would ask, "what of those places that have street lights yet experience crime?"

Guardianship is the physical or symbolic being of a person or group of persons that either represents deliberately or not deliberately to dissuade possible criminal incidence (Hollis-Peel, Reynald, Bavel, Elffers and Welsh, 2011). This is in agreement with Felson's (1975) argument of guardianship as any individual who acts by mere existence to deter crime and by absence to make crime more probable. Hollis- Peel *et al.* (2011) included the way of having closed-circuit television (CCTV) cameras by way of having humans guard purely when it is keenly monitored. Their argument relies on a premise that a camera implies that a guard is in someplace hidden and probably unseen but yet present.

Villarreal (2006) contends that scholars for a long period of time observed a solid link between a regional organizational features such as their level of income, tribal composition, level of poverty and neighbourhood crime. According to Villarreal (2006), the influence of exogenous physical features on unlawful behavior is mediated by the organizational features of the neighborhoods in its entirety. Drawing from Kasarda and Janowitz's (1974), Villarreal posit that a universal model of communal organization, societal disorder theorists since the 1980s did argue that the consequences of an area physical features are precisely arbitrated by the presence of informal connections, such as kinship and alliances relations.

According to Uchida, Swatt, Solomon and Verano (2014), when occupants of neighborhood meet with each other and interact, they form social ties or acquaintanceships. Uchida *et al* (2014) posit that, in a well-operational neighborhood, will have a great proportion of societal interactions amongst dwellers; while in poorly operational neighborhoods there will be lesser societal interactions and therefore certain societal interactions will be in greater proportion contributing to friendship. According to Uchida *et al.* (2014), dwellers residing in areas with close societal contacts tend to look after one another and their belongings. Furthermore, Andhonga and Vole (2017) argue that *Nyumba Kumi* ("ten houses") is an approach for supporting community policing at the family level or any other general group. Accordding to, Andhonga and Vole (2014) *Nyumba kumi* brings people living in a neighbourhood together in search of mutual objectives such as a secure, viable and thriving neighborhood. This fosters the social network and improves communication and sharing of information among

residents of a place. Thus providing sense of security and to intervene if something problematic occurs.

2.2 Physical Environment and Crime Commission

Physical environment is taken to be both built and natural facilities that exist in a particular place. The built environment may include, malls, go-downs, taverns, market centers, roads, parks and building(s) that house a variety of functions. Vegetation covers, bushes, forests are considered to be the natural facilities that can be found in specific locations. Their presence or absence in a particular geographical space may function as a way of encouraging or discouraging crime. According to Groff (2011), a facility is a lone structure that may only serve a particular purpose or may incorporate a cluster of similar functions. The facilities then may represent particular subtypes of businesses or activities that exist in generic land use.

Locations of certain types of facilities and common land use patterns play a key role in influencing human conduct while creating an avenue for crime to be conducted (Groff, 2011). For example, empirical evidence indicate that facilities such pubs (Roncek & Bell, 1981), restaurants (Brantingham & Brantingham, 1982), bus stops (Gerell, 2018), smaller, view obstructing trees (Donovan & Prestemon, 2018) and densely forested places (Schroeder & Anderson, 1984) increase crime rates in the nearby surroundings. Despite these findings showing crime clustering at certain locations as result of presence of specific physical features, more is needed to demonstrate how such facilities attracts crime.

Sherman (1995) sought to examine high crime areas by analyzing some 323,000 calls made to the police. Sherman (1995) realized that a small proportion of places accounted for most of the crimes in the city and that merely 3% of the areas was responsible for 50% of the number of calls made to the police. According to Sherman (1995), the concentration was even higher for offences of burglary, illegal sexual behaviors and auto mobile theft. Out of the 115,000 street locations and junctures in the city, only 5% of the number of the calls accounted for 100% of the crimes committed by strangers. Sherman's (1995) study limited itself to the number calls received by the police and their geographical originality. This study did not, however, consider facilities existing

at those places which accounted for the highest number of calls and those that recorded the lowest number of calls, an item that this study sought to pursue.

Weisburd (2018), observed that over a half (50.4%) of the offenses in large cities ranged between 4.2% and 6.0% of street segments. Weisburd (2018) also found that 25% of offenses were concentrated in between 0.8% and 1.6% of street segments. In studying crime and place in Seattle, USA, Weisburd (2018) observed that offenses were strongly attached to certain places and not others. Notably, a place is a habitat of facilities that may or may not create opportunities for crime. For instance, Mburu and Helbich (2016) established that presence of amenities like train stations, unoccupied houses and payday lenders in urban places were associated with bicycle theft.

Mburu and Helbich (2016) acknowledges to not finding any evidence that links crime rates to police stations. On the contrary, 13% of police environs in South Africa was observed to have experienced crimes (Lancaster, 2013). According to Block and Block (1995) 3,364 incidences of crime occurred in alcohol consumption locations. Therefore, the probability of offending behavior in a geographical space relies on the environmental structure (Capone & Nicholas, 1976). The aforementioned studies offer useful clues as to why certain places might experience more criminal activities or people may likely get victimized at certain locations. However, literature is scant in relation to the manner in which hotspots facilities contribute to crime. Moreover, literature has not clarified whether hotspot facilities at one location will be the same type of facilities at other crime hotspots.

Geographical space associated with facilities such as restaurants, youth clubs and sports clubs, according to Sypion-Dutkowska (2017), are the most commonly burglarized land uses as compared to hardware shops, doctors' offices and tailor shops. According to (Sohn, 2016), environs with more shopping center areas would be more likely experience escalated rates of residential burglary. This is substantiated by Davison and Smith (2003) who acknowledge that crime is more common in nearby areas of commercial land uses. This is an indication that the way in which a facility function, the type of clients that are encouraged in such a facility and the number of people that congregate at a particular time in space acts in a way to make crime more likely. Youth

and sports clubs attracts a crowd of people at a particular time as compared to hardware and tailor shops and doctors' offices. According to Bernasco and Block (2011), availability of large number of people creates probable opportunities for crime occurrence. This is corroborated by Kinney, Brantingham, Weschke, Kirke and Brantingham (2008), who found a correlation between multiple family apartment buildings, shopping malls and learning institutions on the one hand, and assaults and motor vehicle thefts, on the other. A multitude of persons at a particular place sparked by a specific facility, increases the chances of offenders and targets to coincide at a particular time. Such convergence makes crime more probable in the absence of capable guardian(s).

Roman (2005) found that, schools, youth social places, retail shops, and neighborhood disorganization had a stronger influence on violent crimes. According to Roman (2005), schools and youth social places attract violent crimes more strongly. Roman's findings of schools and youth social places having a strong influence on violent crimes, provides possible insights as to how some facilities attracts more crime than others. For instance, depending on the type of people encouraged to use or access the facility. However, literature is scanty on providing explanation as to how place facilities influence crime.

Several studies exist indicating a strong corroboration between presence of pub establishments at a geographical space and heightened levels of crime. For instance, a 1988 study by Langley, Chalmers and Fanslow (1996) showed that 10 percent of aggravated assaults occurred in or around liquor outlets. Briscoe and Donnelly (2001) observed that alcohol drinking facilities were ranked third as the most often premises at which assault cases were recorded. Similarly, ten percent of assault incidents were documented by the police as happening on alcohol consumption buildings (Fitzgerald, Mason & Boryzcki, 2010). These studies points to a strong correlation between pub establishments and crime prevalence. Up to date, nevertheless, studies are restricted to crime occurrences documented by police occurring on alcohol consumption facilities. This creates a need for more research indicating the contribution of liquor outlets to crime within the nearby environs of alcohol drinking joints.

Increased alcohol consumption leads drunkenness, and consequent harm, involving antisocial behavior. This means that greater consumption of alcohol leads to impaired judgment, and therefore, involvement in illegal behavior in some persons become inevitable (Ito *et al*., 1996; Tierney & Hobbs, 2003). Alcohol consumption premises coupled with loud music and dance floors makes crime more likely at nearby establishments. Alarmingly, pub establishments located in locations that are economically disadvantaged leads to increased numbers of crime incidences (Gruenewald *et al.,* 2006). For instance, Fitterer, Nelson and Stockwell (2018), established that 98 assault and 158 disorder crimes occurred on Friday and Saturday nights between mid-January and late May 2015 across block groups in Victoria, British Columbia. Most of these cases of crime were crowded at one particular block group which had highest density of alcohol consumption joints.

Fitterer, Nelson and Stockwell (2018), findings are in agreement with earlier findings which showed violent crime occurring at nearby environs of alcohol outlets (Day, Breetzke, Kingham, & Campbell, 2012). According to Zhang *et al.* (2015), there was a reduction of violent crime when alcohol consumption joints were deescalated. Despite of the existence of researches showing a relationship between crime and pub establishments, little information is available as to why a few places with pub facilities account for high number of crimes within Thika West Sub-county that is characterized by alcohol outlets in most of the neighborhoods.

According to broken window perspective, disorder in neighborhoods or locations implant fear in people and is a recipe for felony crimes. Abandoned buildings therefore, haunt neighborhoods, destroying the city scenery, reducing property prices at the nearby locations and escalating offending behavior (Kraunt, 1999). Spelman (1993) contends that abandoned buildings are seldom places of criminal incidences. However, they can be fertile grounds for planning criminal activities, assembling site or involve in further doings that would attract heightened attention if done in public view. This is based on the premise that criminal gangs choose to hang out at locations they will not be interrupted. Hence, hiding at a deserted place such as abandoned premises fits their needs. In a study to determine whether abandoned buildings are magnets of crime, Spelman (1993) established proof of wrong doings in 83 percent of the 24 unsecured

abandoned building. The evidence included, drug equipment that were seen in all buildings, majority of buildings' walls had blood stains and used condoms were scattered on the floors. This points to a strong link between abandoned buildings and crime. Nonetheless, the study is limited to evidence of crimes within the neighborhoods o abandoned buildings, leaving more to be desired on the influence of such abandoned premises on criminal activities at nearby locations.

The United State census show that abandoned buildings were scattered across the cities and were approximated at 19 million at the end of March of 2010 (Shane, 2012). The Census outlined some of the cities with their corresponding number of abandoned buildings. For instance, Philadelphia is the highest with 40,000 abandoned houses, followed by Detroit with 33,500 and Baltimore at the tail end with 14,000 abandoned houses. Not only are the cities of U.S that are scattered with abandoned buildings but it is phenomenon that is observed throughout the world. Moore (2017) found that almost 250,000 crimes were committed in the city of Chicago with approximately 500 of those crime incidences occurring in abandoned buildings. Despite these finding, there is a need for more evidence on the link between abandoned buildings and crime.

Abandoned buildings acts as both crime attractor and enabler (Shane, 2012). Crime attractor in the sense that they offer shelter, concealment and opportune chances of criminal activities. Due to lack of guardianship and regulation of behavior in such facilities, crime and other intolerable conduct will increase, escalating the threat of victimization. Therefore, qualifying the abandoned buildings as crime enabler. A research at the University of Pennsylvania, USA in 2012 revealed that greening and bettering vacant lots and abandoned buildings contributed to a decline in firearm related offences. Additionally, it led to heightened perception of safety by people who live at nearby precincts (Garvin, Cannuscio & Branas, 2012). Elsewhere, studies shows a corroboration between high number of abandoned buildings and drug related offences, prostitution and early deaths (Hannon & Cuddy, 2006; Cohen *et al*., 2000 & Cohen *et al.,* 2003). This is an indication that abandoned buildings create a significant risk to safety and wellbeing of people who live at the surrounding environment and their property. Consequently, such researches acts as a bearing to the current study which factors abandoned buildings as one of the measurement of physical facilities.

Public parks are of great value to the residents who live at the nearby surroundings. Residents are able to not only enjoy the natural environment but also meet with friends. Well designed and used parks provides a setting where people from varied social classes can interact and thus, development of social solidarity (Rees, 2000). Studies conducted on monetary benefit of parks show that property values heightened at the areas surrounding parks (Crompton, 2001; Espey & Owusu-Edusei, 2001; Lutzenhiser & Netusil, 2001; Voicu & Been, 2008). This is an implication of low crime incidences as heightened property value is associated with increased. Secure neighborhoods contributes to increase in demand of properties as people prefer to reside or invest in areas that they feel their life and properties are safe.

Parks offers natural environment where people will relax both emotionally and physically hence, relieving irritability and impulsivity which are precursors to violence. Furthermore, Konijnendijk *et al.* **(**2013), contends that parks are vital assets in the community as they provide ecological, economic and social-cultural rewards to urban residents. Despite these general positive benefits of parks, Groff and McCord (2011) opines that parks can be a perfect crime generator as it magnetizes a greater proportion of people who are potential lawbreakers. As they can act as an assembling area for individuals who would likely not gather in the neighboring environs if the parks did not exist at the nearby and afterwards end up engaging in criminality at or near the park.

Parks are examined in a sequence of researches that endeavor to explain criminal activities. For instance, there are key security and crime alarms in some of the parks in South Africa as they are characterized by theft, murder and rape cases (Perry & Munien (2012). Groff and McCord (2011) found a correlation between neighborhood parks and increased incidences of offending in the nearby region. Earlier on, Crewe (2001), established greater proportion of crime incidences and calls made to the police requesting for service at residents adjoining the parks. Other group of researches that tend to establish a link between parks and prevalence of crime are those that included parks and recreational grounds in multiple investigation of different neighborhood (Perkins et al, 1993; Wilcox *et al,* 2004; Lockwood, 2007). All these studies do not solely focus on assessing the impact of parks on crime, but they lump parks into large classifications of commercial land use. This render it difficult to isolate the particular

effects of parks on incidences of crime at the surrounding neighborhoods. Moreover, none of these studies has examined the effect of particular park characteristics as they relate to illegal behavior.

Brantingham and Brantingham (1993) contends that neighborhoods whose facilities attract a multitude of people at a particular time are considered as crime attractors. Facilities such as parks, market centers, shopping malls, transit stations among others are crime generators as they bring together a crowd of people some of which are driven by illegal motives. According to McCord and Houser (2017), places characterized by crime generators are at increased risk of recording high incidences of wrong doings. These areas together with their immediate neighborhood are frequently visited and thus, fall under the cognizance space of the likely offender. Within the context of crime pattern perspective, neighborhoods whose facilities brings large number of people together at a particular time will report increased incidences of crime. The likely offender would be driven to market center, transit station or parks because of the opportune chances of crime they provide (Brantingham & Brantingham, 1995a).

Highly visited places and their immediate surrounds, as well as the busy roads and pathways traveled between them, tend to experience more crime because they fall into the awareness space of many potential offenders (Brantingham & Brantingham, 1993). Smith and Cornish (2006) established that certain types of crime were evident at a particular facility that brings large number of people together. Smith and Cornish contends that facility such as public transport station is characterized by theft of passenger's' valuables, vandalism, assaults and robbery. A multitude of people leads to reduced chances of natural surveillance and subsequently, guardianship in general. This repute escalates the number of probable offenders attracted at a place. In the case of neighborhood parks, probable criminals are attracted due to parks being a large public space characterized by limited conduct regulation, where vegetation cover and diminished lighting reduces natural surveillance (Groff & McCord 2011). Probable attacker may therefore prefer a neighborhood park as a fertile ground to locate a lone victim either during daytime or dark hours when majority of people are away. These evidence of neighborhoods facilities that congregates large number of people together

influencing crime need to be interrogated more. There is little information on specific features of why such facilities are preferred by probable offenders.

There are two opposite perspective regarding the relationship between vegetation cover and criminal activity. The first and ancient school of thought holds that vegetation influences crime as it offers cover, and thus concealing actions of probable offenders. It also follows that people will fear areas that are covered with thick vegetation. Several studies exist supporting this school of thought. For instance, Shaffer and Anderson (1985) conducted a study on the perception of the security and attentiveness of parking lots. Using 180 scenes of parking lots, they established that safety was less perceived if a photo was covered by dense vegetation. Nasar and Fisher (1993) found that bushy surroundings that diminishes visibility into places where probable offenders hide were linked with fear of crime. Potgieter *et al.* (2019) contends that presence of bushes in the neighborhoods play a secondary role in enabling crime by acting as a symbol of diminished societal regulation over the environment. All these studies point to the fact that thick vegetation cover offers likely hiding place for potential offenders and thus escalating the opportune chances of crime. Overgrown shrubs and other vegetative mater all minimizes visibility and hence able of facilitating illegal activities. But one would ask, do all vegetation block visibility?

The second school of thought posit that availability of vegetation potentially discourages criminality. Proponents of this school thought contends that vegetation which do not obstruct visibility deter crime (Kuo & Sullivan, 2001). Using crime statistics from Austin police department, USA, Snelgrove *et al*. (2004) studied the link between vegetation (trees, grass and shrubs) and crime incidences. The findings showed a negative relationship between tree cover and crime. Troy, Grove, and O'Neil-Dunne (2012) found that tree cover has a solid negative association with varied forms of crime. Moreover, Wolfe and Mennis (2012) observed that dense vegetation cover in a geographical space has major negative connection which incidences of crime including robbery, assault and burglary. Varied justification as to vegetation cover discouraging crime have been put forward. One probable account is that better landscape planning encourages spending time outside the house as it is pleasing leading increased "eyes on the street" to monitor intolerable behavior (Troy, Nunery & Grove, 2015). Increased

“eyes” in a geographical space discourage crime as potential offender’s actions would not go unnoticed.

The two contrasting school of thought on the influence of vegetation cover on crime implies that, discernments of city green space differ among urban residents. Jorgensen, Hitchmount and Dunnett (2005) contends that certain individuals may choose green environments as their environs, nevertheless these similar environments implant a fear of crime in others. According to Shanahan *et al*. (2015), vegetative matter offers relaxation opportunities for city dweller and promote feelings of wellbeing. However, other inhabitants may have a perception of vegetation cover as hide outs for probable offenders and concealment of contrabands and other stolen items. These contradictory arguments on vegetation cover creates a need for a further study on the influence of physical facilities (natural environment) on crime commission particularly within the neighborhoods of Thika West Sub-county, Kiambu County Kenya.

Lancaster (2013) established that half of the murders in South Africa occur in 13% of police environs. Lancaster (2013), also found that over 10% of the police surroundings did not experience any murder crimes while central business districts was associated with the highest risk of violence. The survey did not establish the exact relationship between facilities in those places and occurrence of crime, and neither did it disaggregate crimes to address the most serious crime, murder, especially in facilities surrounding the police precincts.

Using focus group discussions, Security Research and Information Centre – SRIC (2014) conducted a study on the incidence of crime and violence in Nairobi to identify high risk areas. Although the focus group participants felt that crime was everywhere, they were nonetheless able to identify the hotspots. The survey also yielded a distinctive finding, that offenders disguise themselves as street/ homeless children. This study was important as it revealed some of the ways in which physical facilities abet crime. For example, lodgings and bars act as hideouts for potential and actual offenders. Offenders also disguise themselves as bystanders at ordinary street events such as card gambling from where they monitor the movements of their targets before they pounce. Densely populated urban communities also provide the opportunity for exchange of contraband,

such as guns and drugs. They also create an enabling environment for illegal immigrants to thrive. Other types of crime that are abetted by population congestion include daylight purse-snatching, assault, pickpocketing, and burglary. From the literature examined it is evident that neighborhood physical facilities influence crime. It is also evident that some facilities attract more crime than others. This creates the need to establish any correlation between the physical facilities existing within the identified area of study and the incidence of crime.

2.3 Place Guardianship and Crime Commission

According to situational crime prevention perspective, a guardian has a significant role in influencing crime, as he/she have a duty of protecting and defending targets of crime. Cohen and Felson (1979) observes that, crime occurrence at a place is made possible by the absence of a capable guardian. Lack of a capable guardian exposes a suitable target to a motivated offender when they come together in time and space (Reynald 2010). These arguments are instrumental as they yield some of the responsibilities played by the actors who are accountable for controlling crime. For instance, handlers have a duty of controlling probable offenders while managers have a responsibility of controlling places (Eck, 1994).

Crime occurrence at a place is less when valuables are directly monitored by guardians, wrongdoers by handlers and locations by managers (Felson, 1995). According to Clarke (1997), both public and private organizations and agencies such as transport facilities, hospitals, schools, shopping centers, recreational facilities, bars and car parks have merchandises, services and operations that offers opportune chances for diverse crimes. When such organizations and agencies incorporate guardianship measures such as surveillance cameras (Piza, Welsh, Farrington & Thomas 2018), defensible space architecture (Neman 1972) in public housing, target hardening of apartments and alcohol regulation in drinking area (Clarke, 1995), criminal activities are reduced in such facilities. The aforementioned studies offers possible insights as to how guardianships measures influence crime, yet literature has not fully accounted for these phenomenon.

Weisburd *et al*. (2016) postulates that a small quantity of neighborhoods experience most of the offenses. Such neighborhood would remain crime hot spots and will tend to spread crime to their neighboring precincts (Eck & Eck, 2012). Persistence of crime in certain places would be motivated by, according to Wilcox and Eck (2011), the existence of a number of businesses in a small area that encourages offending. Offending behavior will escalate due to the manner in which proprietors operate them (Madensen & Eck, 2013). However, when positive place management is focused on such high-crime places, crime declines at these places (Eck & Guerette, 2012). Consequently, crime reduction will also be experienced in the nearby environs (Guerette & Bowers, 2009). The studies are limited in the sense that they do not establish the features of positive place management and how such features would act to deter crime occurrence, a gap this study sought to fill in terms of guardianship measures.

Nightclubs that permit drug use, unsecured apartment buildings and alcohol consumption locations that do not consider community safety often attract motivated offenders (Madensen and Eck, 2013; Eck, 2018). According to Madensen and Eck (2013), these locations would likely suffer from high levels of crime simply based on failure to set appropriate behavioral expectations, enforce rules of conduct, or provide guardians or handlers to prevent misconduct. Managers of these place thus have the ultimate responsibility of regulating conduct of people that access their facilities (Madensen, 2007). For instance, bar and nightclubs proprietors would discourage actions such as entering through rear doors and selling additional alcohol to already drunk customers while apartment owners can secure their premises by controlling access to the facilities through entrance screening (Eck, 2018). Madensen (2007) and Eck (2018) views on place management points out a strong relationship between guardianship and crime control. Their perspectives was beneficial in guiding the study in identifying various security measures employed and their effectiveness towards encouraging or discouraging crime in the identified area of study.

Hollis-Peel *et al.* (2011) argue that the most vital roles for guardians are their presence and supervision. Presence of a guardian creates an impression that somebody is watching and could notice unacceptable behaviors or persons thus dissuading the

potential offender from engaging in illegal activity. Mechanism that involves setting up or enhancement of street lighting, the elimination of obstacles from windows of convenience stores that, opaque lines of sight into the store, and the elimination or trimming of bushes in a home environment so that inhabitants may have a perfect sight of the outdoor, prevents crime (Welsh & Farrington, 2009). Such mechanisms increase place guardianship through natural surveillance hence scaring away any potential offender (Fennelly, 2017). Fennelly (2017) view provides fundamental insights on the usefulness of natural surveillance as guardianship measures in crime control. Nonetheless, literature is still scanty on how such measures discourage crime as there exists empirical evidence which indicates how such measures can enhance potential offender's view of the targets. Hence the need to have a study that takes into accounts a correlation between place guardianship and crime incidences.

Place guardianship by use of CCTV cameras aids in deterring crime (Bloom, 2018). This is in agreement with Farrington, Gill, Waples and Argomaniz, (2007) who observe that presence of CCTVs creates an impression in potential offenders mind that the risks of being caught are high as they are likely to be seen. This may discourage crime by scaring away the likely offenders (Gill & Spriggs, 2005). Armitage (2002) supports the arguments by noting that, general car crime reduced in the parking lots in which CCTV had been installed, in comparison either to a period preceding to the installation or to control areas without CCTV. Poyser (2007) acknowledges that some heritage place managers felt that since local people were cognizant that their heritage sites lacked CCTVs, additional types of crime and anti-social conduct crept onto their heritage sites. These studies are limited to looking at the relationship between offending behavior and presence or absence of CCTVs as the lone measure of guardianship on a geographical space; yet there exist a variety of surveillance measures, a gap this study sought to fill by examining the correlation between guardianship measures and crime incidences.

Police patrol is likened with the visible presence of a police person in an area, whether on foot, horse, motorbike or in a car. Braga (2007) established that police patrols that focused at high crime areas had a statistically significant effect on crime. According to Bernasco (2008), probable offenders including robbers tend to recidivate at places where they had earlier fruitfully engaged in unlawful activity. It is therefore predictive

that a geographical space is most at a threat of being targeted again in the instantaneous outcome of crime occurrence (Ross & Peace, 2007). Allocating a thorough police patrol in such a geographical space then, according to optimal forager perspective, leads to crime deterrence. This is in agreement with Vidal and Mastrobuoni (2017). Vidal and Matrobuoni observed a reduction in crime incidences when Essex police (U.K) adopted "Operation Insight" (a rule that aimed at protecting vicinities of recent burglaries) at a more than 6,000 areas that were associated with criminal activities.

Based on observed crime prevention literature, neighborhood guardianship through the use of police patrols should decrease crime incidences. By contrast, Vidal and Mastrobuoni (2018) opines that, random police patrol has no effect on crime. This is in concordant with Karn (2013) who opines that random police patrol is rather ineffectual in decreasing crime and detecting potential offenders particularly in crime hot spots. The literature observed indicates lack of consensus on the influence of guardianship measures by use police patrols on crime incidence. Therefore, the current study sought to fill such a gap.

Burns, Flaherty, Ireland and Frances (1995) conducted a study on the effect of increased police enforcement around liquor and registered clubs on crime incidences, particularly, the number of assaults. Ten police officers were used in the study where five of them were assigned to the experimental area and the remaining five officers allocated in the control area. Police officer assigned at the experimental area conducted frequent but random patrols around the predetermine pub precincts while officers designated at the control area maintained normal police routine patrol. The study findings indicated a substantial increase in crime incidences in the experimental area from pre-intervention to intervention and a reduction from intervention to post-intervention. On the other hand, crime incidences in the control area increased from pre-intervention to intervention and reduced from intervention to post-intervention. Despite of this study indicating positive results, it is contaminated by other police intervention strategies that occurred simultaneously with study. Consequently, it cannot be concluded that the reduction in illegal activities around licensed pubs is as a result of heightened police patrols.

Neighborhood guardianship through police partnership with the community has been highly advocated in the recent past. The collaboration is famously known as community policing. According to Community Oriented Policing Services (2012), Community policing is an approach where law enforcement officers work hand in hand with members of the community to address incidences of crime and other related issues. Thus, community policing is a good illustration of multi-sectoral cooperation for enabling members of the public in the fight against crime at a geographical space (Tabassum, 2018). Police-community interaction, communication, and collaboration are key elements of community policing (Wilson & Cox, 2008). When police interacts often with citizens, the latter will be willing to share information with the former concerning crime issues as there exist mutual trust and cohesion between the two. However, the relationship between sharing of information and crime decrease is rarely illustrated in the literature.

Community policing is long standing concept just as police work. It is anchored on the premise of deterring crime and enhancement of police- community partnerships. For effective crime prevention, community members need to involve in policing of their ecological setting. Law enforcement officers need to cultivate an atmosphere of mutual trust and self-assurance with the community. Therefore, the vital aspect for police work are the people and people are the police (Peel, 1829). Trojanowicz and Bucqueroux, (1990) contends that law enforcement officers and members of the public should work in collaboration to address community challenges, minimize fear of crime and societal disconformities. Police need to incorporate visitations to property proprietors and tenant meetings in their normal duties in order to share information which is vital in minimizing and deterring crime. In a study on influence of community policing on crime reduction in Machakos County, Kenya, Wanjohi (2014) found positive significant relationship between police-community partnership and crime reduction. This is corroborated by Mwniki (2016) who established that shared police-community patrols through involvement of vigilant groups and community courts led to substantial crime deterrence. In respect to these findings, more need to be interrogated, particularly in Thika West Sub-county, Kiambu County on community policing as a guardianship measure.

Situational crime prevention approach advocates that ecological parameters may be utilized to vary the sanction risk perceptions of probable offenders. When people perceive that their actions are being monitored, they are more likely to exhibit socially conforming behavior. For instance, security guards in the public sphere avert crime in an active manner as their visibility heightens the threat of apprehension (Ariel, Bland & Surtherland, 2017). This is in agreement with Fischer and Green (2004) who contends that, presence of a security guard monitoring a geographical space together with its associated assets reduces chances of crime occurrence at such a place.

This is evident as almost all commercial premises and huge chunk of domestic properties such as small, medium and large enterprises, non- governmental organizations (NGOs), residential premises, among others, have twenty four hour guards. Security guards deter crime by patrolling at their respective area of jurisdiction, responding to alarm activations and dealing with a crowd at large public events (Robert, Fischer & Green, 2003). However, a security guard creates negative spillovers as potential offenders substitute non-guarded targets for protected targets (Meehan & Benson, 2017). Despite security guards fundamental role in discouraging crime, majority of them are un-armed. This un-armed prominence is becoming increasingly insufficient in a contemporary rising of crime and violence. Besides, Loader (1997) observes that, patrols by security guard could be inadequate to satisfy public demand for additional security. As security guards lack the symbolic impression that a police officers have.

Place guardianship through altering the ecological setting in which socially non-conforming behaviors takes center stage has been used as one of guardianship measure in preventing crime. Street lighting has frequently been used as one of the ways of modifying the environmental condition with aim of deterring crime (Wright *et al*., 1974; Tien *et al*., 1979; Painter, 1994). According to Atkins, Husain and Storey (1991), street lighting is based on the premise that availability of light especially at dark places, will enable users of such a geographical area to notice suspicious activity. Moreover, well lit neighborhood encourages increased usage of such neighborhood, thus increased potential witnesses (Jacobs, 1961). Consequently, less crime incidences will be experienced in areas with a large number of potential witnesses.

Despite such perspectives on how street lighting reduces crime, literature exists indicating little effect of street lighting as lone measure on crime control. For instance, Atkins, Husain and Storey (1991), found that improved street lighting had no effect on crime. Ramsay and Newton, (1991) also established that crime incidences were not affected even with better lighting. This means that, improved illumination of a street, residential area or any of a geographical space, acts as a catalyst for more crime incidences. Well lit places heightens perceptibility of likely targets allowing better assessment of their susceptibility. According to Pease (1999), improved street lighting enhances potential offender sight to be able to notice if a parked vehicle contains any valuables.

Painter and Farrington (2008) used a victim survey to determine the prevalence of crime incidences 12 months prior and 12 months after putting in place better lighting in Stoke-on-Trent, U.K. The study findings revealed a decline in crime prevalence by 26% in the experimental area and by 21% in the nearby environs. Moreover, there was an observed reduction of crime incidences by (43%) in the study area and 45% in the neighboring precincts. According to Clarke (2008), there was a decrease in crime by 52% in the city of Preston, in Lancashire, United Kingdom. This is after the initiation of Hopwood Triangle project following little investment and heightened criminal incidences including damaged properties, burglary, prostitution, and antisocial behavior. The project comprised a variety of measures including installation of streets lights and upgrading or mending of existing lights in the crime hot spots. All these studies involved varied intervention measures, thus it makes it difficult to justify the reduction in crime as a result of installation and enhancement of street lights.

2.4 Social Interaction and its Influence on Crime Commission

Human conduct does not happen in a space but is continuous chain of exchange encompassing social networks, communal engagements, neighborhoods interactions, and institutions. The constant exchange leads to formation of links of informal social control which are essential to establishment of value structures that reflects the prevailing societal norms (Uchida *et al*, 2014). Moreover, the way in which individuals interrelate, share mutual objectives and morals and trust with one another are related with levels of crime. Freudenburg (1986, p. 31) observes that, “Individuals who know

one another often work out relational covenants for realizing anticipated aims. They are made possible by the fact that the persons involved are individually acquainted. People who continue to be strangers will be methodically less likely to be willing or able to participate in such mutual agreements." Thus, Freudenburg's study draws a direct connection amongst societal contacts among area occupants, neighborhood links and informal communal controls (Bellair, 1997).

The utmost levels of alarm with social interactions have been at moments of significant transformation. For instance, Walton (1987) argues that the interruption of traditional social relations is as a result of industrialization. The increased levels of crime in specific geographical areas in the mid-20th century was catalyzed by social disorganization brought by the impact of urbanization on traditional social interactions (Shaw & McKay, 1942). Currently, the modern challenges and disintegration attributed to globalization and rapid urbanization, have triggered a renewed attention in social interactions. Key to the perception of social relation is how urban community neighborhoods can be reinvented in the wake of social change (Barolsky, 2016). To that extend, nonetheless, there exists little study on social interactions in particular neighborhoods and its influence on crime incidences.

Warren (1969) conducted a study in Detroit U.S.A. The study aimed at examining riot activity in eight African-American school districts. According to the study, neighborhoods where a large number of occupants interacted frequently experienced less crime (riots). The study also established that, neighborhoods where inhabitants observed unanimity within the community, had fewer riot activity and heightened counter-riot measures. Warren's study examined one key aspect (frequency of interaction) which was an indicator of establishing the influence of social interactions on crime prevalence in the current study. Thus, Warren's (1969) study acted as a point of reference in this research as a result of having one common indicator – frequency of interactions.

Residents in the less crime areas in San Francisco-Oakland, according to Bellair (1997), experienced dense interactions with their neighbors. The dense interactions enabled them to recognize at least 50 people in their neighborhood by name and had a friendship

network in the locality. Haynie, Silver & Teasdale (2006) acknowledge that people living in neighborhoods characterized with large and active social links are in a position to create social trust and enforce mutual values including the need to live in a crime-free neighborhood. Bellair (1997) argues that, it thus appears logical to pre-empt that neighborhood connections centered on family, neighboring friendship bonds and communal organizations are effective means of societal regulation. These, though, do not symbolize the lone forms of relations or possible social control and the influence of such interactions on crime commission, a gap this study sought to fill by looking at variety of societal interactions and their influence on crime.

Sampson, Raudenbush and Earls (1997) contend that shortage of social harmony and shared effectiveness may contribute to offending behavior. This is enabled when both victims and criminals congregate at one place at the same time (Bottoms, 2006). An analysis of data from the British Crime Survey indicates that, neighborhoods exerted autonomous influences on persons' fear of crime, not only through observable indicators of disorganization and reported offenses, but also through their social structure (Hirschfield *et al.,* 2014). For instance, neighborhoods that are characterized by frequent communication can improve the growth of social networks even in places with increased cultural heterogeneity (Tran, Alison, Small & Winship, 2013).

Involvement in societies can offer amenities and resources which work as a spare for relational social bonds (Small, Jacobs & Massengil, 2008). Such social relations in the community may be a more crucial feature in lessening feelings of insecurity (De Donder, De Witte, Buffel, Dury & Verte, 2012). Furthermore, neighborhoods associated by high levels social links will have greater dependence amid residents and teamwork in the execution of social values against offense and delinquency (Villareal, 2006). The aforementioned studies offers possible insights on the correlation between social interactions exhibited in variety ways and crime occurrence in a neighborhood. Therefore, more is needed to demonstrate how such interactions influence crime.

Abdulllah, Mansor, Ahmed and Hussain (2017) conducted a study in Selangor, Malasyia. The study sought to determine how social cohesion fosters a sense of belonging – isolation. The study findings show that social cohesion in socio-cultural

dimension based on the feeling of belonging showed a significant difference among ethnic Malays, Chinese and Indians. According to the findings; practically all ethnicities were saddened if any neighbors who died regardless of the ethnicity – Malays 59%, Chinese 40% and Indians 69%; all the three ethnic groups showed a positive value in relation to helping one another regardless of the ethnicity – Malay 74%, Chinese 50% and Indians 83% and in relation to dimensional sense of belonging to an invitation to a celebration, all the three ethnic groups studied showed a negative percentage – Malay 34%, Chinese 19% and Indian 27%. This suggests that high sense of belonging fosters social cohesion and as a consequence, Dora (2009) contends that it enables neighbors to communicate and know each other. Besides, such kind of belonging acts as a recipe for people to look after one another and any intruder entering such a place can easily be noticed (Maxwell, 1996). The study was thus instrumental in providing direction in the current study on how communal engagements (a form of social interactions) influence crime.

Sambaiga (2018) conducted a study in several regions in Tanzania. The study sought to determine how *Nyumba Kumi* ("ten houses" in swahili) manifests itself in the form of community initiatives to address pressing public demands such as security-neighborhood watch and bodaboda (motorcyclist) associations or groups. The study did not limit itself to households sharing a physical location but includes members from distant households who happen to share physical space by virtue of their occupation or livelihood activities. The findings of the study reveal that, the chair of the group along with other leaders makes some efforts to identify members of the group for mobilization. According to Sambaiga (2018), through social media platforms especially WhatsApp groups, members easily communicate security alerts among themselves besides other issues of concern to the neighborhood. This acts as a vehicle to strengthen the social interaction and people to care for one another at any given time and place. This is corroborated by Shehayeb (2010) who opines that neighborly relations of different kinds, such as sharing the responsibility of collective spaces, surveillance of streets and open spaces, increases the chances of knowing one another. According to Shehayeb (2010), this makes the residents to have control over the built environment, hence any strangers entering such neighborhood is easily noticed.

Robert (2016), argues that fear of crime may be influenced by the level of trust, cohesion and attachment among the residents of a particular neighborhood. Utilizing British Crime Survey data, Markowitz, Bellair, Liska and Liu (2001), established that decline in neighborhood social cohesion is associated with increased crime and disorder. Simons, Simons, Burt, Brody and Cutrona (2005), found that neighborhoods with increased levels of collective effectiveness are associated by proper parenting styles. Consequently, containing juveniles from involving in delinquency conduct. Furthermore, Warner (2007), established that social ties among residents of a neighborhood increased the probability of them intervening in a needful situation. These results are indication to a link amongst neighborhood social relations and the incidence of crime. They justify the need for a study to determine the influence of social relations on crime

Andhonga and Vole (2017) conducted a study among cosmopolitan sub-locations in Nakuru County, Kenya. The study aimed at determining how partnership and communication process in the *Nyumba Kumi* initiative influences social unity amid cosmopolitan sub-locations. The study found that greater number of respondents (52.6%), alluded to the fact that, communication process' efficiency in the program was below average than 33.8% who indicated that it was above average. Andhonga and Vole posit that, communication being a vital element in social harmony, should be efficiently applied across the entire formation. With little communication among residents of a place associated crime attractors and crime enablers, more aliens would reside at such a place. Consequently, crime becomes inevitable. Greater social cohesion may then in fact contribute to a greater understanding of threat by clearing the way for the spread of information whereas it may have a say to a decline in crime (Villarreal, 2006).

From the literature, it is evident that a large body of observed studies has centered on the effect that social and structural features of urban environments have on crime levels. Research on the social interaction of urban neighborhoods and its effects on crime commission have rarely been tested. Thus a need for a study that considers the corroboration between social interactions of urban settings and incidences of crime.

2.5 Theoretical Framework

Various theories have been discussed on offenders' decision-making on where to commit crime. Offenders' place decision making can be understood from two theories; rational choice theory and social disorganization theory. In rational choice theory, criminals consider the consequences and rewards of potential choices and would make choices that offer high benefits (Clarke & Cornish, 1985). Social disorganization theory centers on the effects of types of neighborhood in creating conditions suitable or unsuitable to crime and delinquency.

2.5.1 Rational Choice Theory

Rational choice theory is based on the premise that crime is preferred for its benefits as compared to costs involved. If the benefits of crime are higher when compared to costs, crime will occur. Nonetheless, crime would be discouraged if the benefits expected are less than the costs of crime (Giil, 2009). Preferences for a crime, according to McCarthy and Chaudhary (2014), is influenced by the risks and uncertainty. For instance, criminals choose to offend when the police are in a different place and prefer to observe the law when they are present (Tsebelis, 1990). Presence of police implies heightened risks of being caught, a situation which a probable offender would not prefer. Thus, offenders operate within precise, specified limitations and on the foundation of the knowledge that they have concerning the circumstances under which they are operating (Scot, 2000).

According to Scott (2000), human conduct, similar to all animal conduct, is not random but resolute. It is fashioned by the rewards and penalties that are experienced. This is affirmed by McCarty and Hogan (2005) who observe that some offenders take into consideration the threat of violent response to their crimes as one of the crime's vital cost. According to McCarty and Hogan (2005), the anticipation that their wrongdoing will result in physical harm would probably dissuade individuals from adopting it.

Beauregard, Rossmo and Proulx (2007) posit that, the hunting process of offenders take in the identification for an appropriate targets and the method of assault. Appropriate targets depend on the choice of target hangout, while method of assault relies on attack points. For instance, scot (2000) opines that: one, place that is poorly managed like lack of security cameras and personnel will form an easy target for potential offenders. Two,

facilities of a place like unregulated liquor stores, liquor consumption dens surrounded by bush environment acts as attraction site for criminals as they are able to vanish in the nearby bush or abandoned buildings after offending. This logistical assessment of places to commit crime may vary depending on time, effort, and existing information.

2.5.2 Social Disorganization Theory

Social disorganization theory is anchored on the association between neighborhood organization, societal control and crime (Kubrin & Weitzer, 2003). In a socially disorganized neighborhoods, there exist less or no cohesion, solidarity and integration among the residents and thus have increased crime rates (Kubrin, 2009). However, Williams & McShane (2004) note that, unbroken homes, good family morals and good relationship among friends and families are the fundamental tenets of a socially organized neighborhood. Additionally, Shoemaker (2000) acknowledges that, an intact social system can be considered as structured if morals, norms, and social interactions are unified and interact in an orderly manner. Thus criminal behavior is brought by the interruption of institutional and community based controls which then lead to a socially disorganized community.

This disruption can be through rapid industrialization and urbanization (Cullen & Agnew, 2006), low social economic status (Sampson & Groves, 1989). Osgood and Chamber (2000) emphasizes that, the disruption of the informal and formal community control setups is as a result of rapid population growth that weakens social bonds. According to Cam (2014), presence of low socio-economic status neighborhoods, hinders the community from instituting a strong and well organized structures. Besides, in these types of neighborhoods participation level in voluntary organizations is very low. Consequently, offending behavior increases in these communities.

One of the most important dimensions of social organization in a society is informal neighborhood friendship links (Sampson, 1989). According to Sampson (1989), when occupants of a neighborhood form social ties, their capability for area social regulation is increased since they will be in a position to identify outsiders and more suitable to engage in guardianship conduct against victimization. According to Krohn (1986), network solidity refers to the degree to which the entire participants in a social network

are linked by direct relationships. Sampson and Groves (1989) note that neighborhood friendship networks will one, encourage the capability of area occupants to identify unfamiliar persons, thus facilitating them to get involved in guardianship conduct against victimization. Two, apply structural restraints on the unruly manners of residents in an area.

Sun, Triplett, and Gainey (2004), in a test of Sampson and Groves' model of social disorganization perceived that, a high rate of residential movement hinders the growth of strong friendship connections among area occupants by increasing anonymity with neighbors. This will in turn have interruption on the family, friends and neighborhoods decreasing the capacity of grownups to monitor and control local youths. Furthermore, residential mobility negatively influences the formation of social links since it consumes time to cultivate strong social bonds that contribute to community social organization (Kingston & Elliot 2009).

Neighborhoods that are structurally disadvantaged are incapable to effectively monitor children and offer sanctions for inappropriate conduct thus such neighborhoods are likely to have increased cases of delinquent peer groups available to youth (Rankin & Quane, 2002). Consequently, poorly supervised youth are more capable of interacting with delinquent peers and to engage in delinquency (Henry, Tolan, & Gorman-Smith, 2001). These organizational circumstances affect the ability of neighborhood residents to create social relationships needed for developing shared belief and cohesion. With absence of mutual trust and solidarity, Sun, Triplett and Gainey (2004) observe that, is prerequisite to decline in the strength of friendship relations, monitoring of neighborhood youths, and structural involvement which then directly influence neighborhood rates of criminality.

2.6 Conceptual Framework

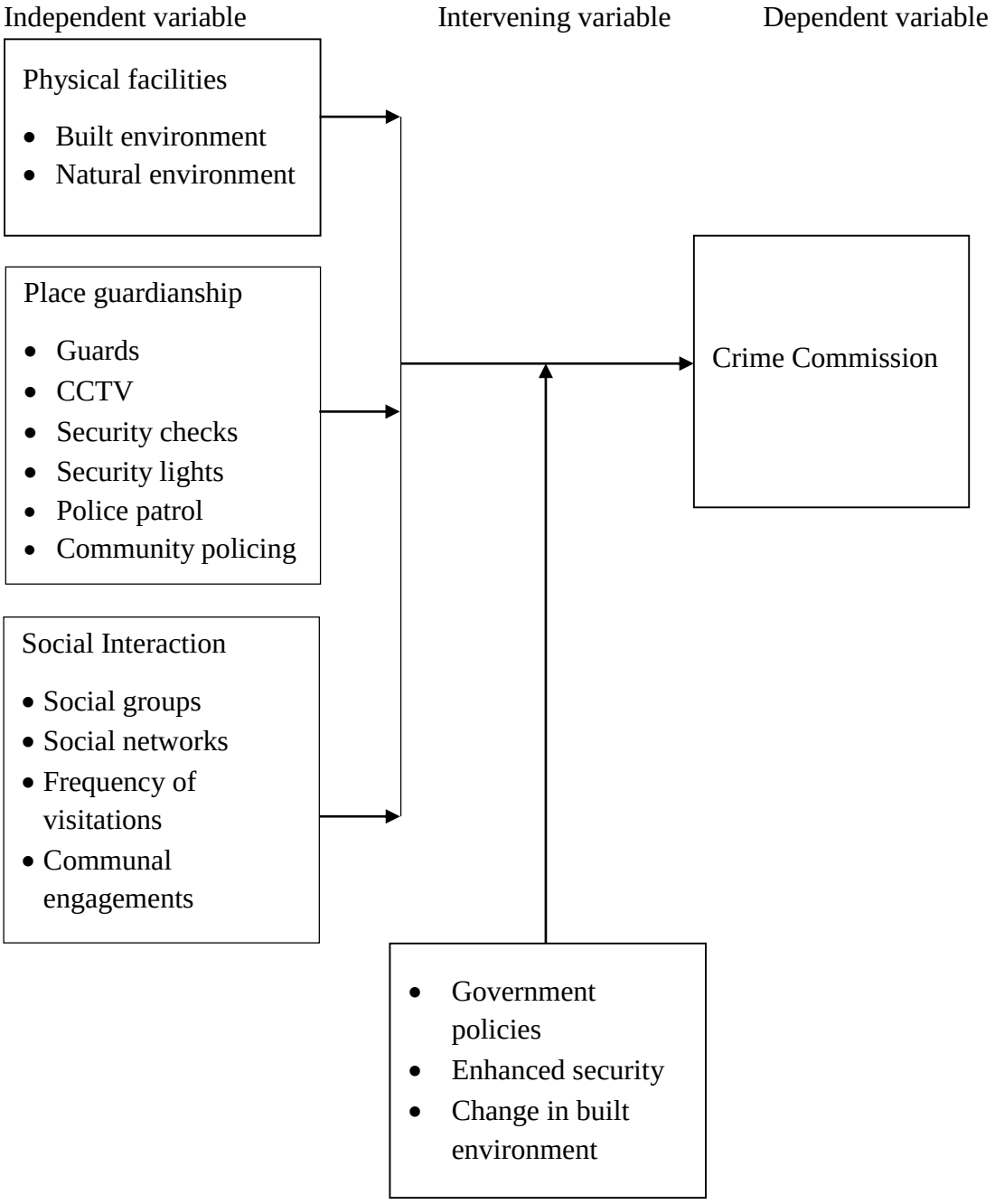

Figure 1: Influence of Place Facilities, Guardianship and Social Interaction on Crime Commission.

Figure 1 shows that neighborhood characteristics whose physical facilities, guardianship and societal interactions provide crime opportunities such as weakly guarded valuables and easy escape routes, provide fertile ground for crime commission. However, change in built environment, beefed up security and enhanced government policies discourages crime in such neighborhood.

CHAPTER THREE
METHODOLOGY

3.1 Location of the Study

The study was conducted in Thika West Sub-county in Kiambu County. Thika West Sub-county is located on latitude 1^0 01'S and longitude 37^0 04'E. Thika West Sub-county has a population of 245,820 (KNBS, 2019). Thika West Sub-county was considered as a case study because from the Thika West Police Division Office (2018), 10% of the places accounted for 55% of the crimes reported in the Sub-county. Additionally, Kiambu County is ranked highest in crime prevalence for the years 2015 and 2016 in the country (KPS Annual Crime Report, 2015; 2016). And ranked second for the years 2017 and 2018 (KPS Annual Crime Report, 2017; 2018)). According to KPS Annual Crime Report (2018), Thika West Sub-county accounted for 40% of the crimes reported within Kiambu County.

3.2 Research Design

The study adopted descriptive research design. This design was suitable for the research because it enabled the study to give a description of the status of the subjects in the study. This design was helpful in describing the effect of neighborhood characteristics on crime commission. Tromp (2006) and Kothari (2004) concur that a descriptive survey is a good method of gathering data by administering questionnaires to sampled persons. Mugenda and Mugenda (2009) also note that a descriptive survey is useful in describing things such as attitude and characteristics.

3.3 Target Population

The target population was 245,820 people within Thika West Sub-county. The population included all business persons, security officers (chiefs and police officers), Sub-county residents within the Sub-county and the D.C.C.

3.4 Sample Size and Sampling Procedure

The sample size was determined by Slovin's formulae; at 95% confidence level and 0.05 population variable.

$$n = \frac{\mathrm{N}}{(1 + \mathrm{Ne}^2)}$$

Where,

n= sample size

N= total population

e= error balance

$$n = \frac{245{,}820}{(1 + 245{,}820 \times 0.05^2)}$$

$$= \frac{245{,}820}{615.55} = 399.35017$$

n=400

Simple random sampling was used to select respondents that were included in the study sample. Simple random sampling is a probability sampling that offers every element in the population an equivalent chance of getting into the sample and all choices are autonomous of one another. More importantly, simple random sampling guarantees the law of Statistical Regularity which states that "if on an average the sample chosen is a random one, the sample will have the same composition and characteristics as the universe," (Kothari, 1996).

3.5 Research Instrument

The instrument that was used for data collection was questionnaires. The questionnaires were preferred because as Kombo and Tromp (2006) observe, questionnaires are less expensive, they do not consume a lot of time in their administration and they allow the respondents the freedom to share out their views and feelings independently hence reducing the interviewer bias. The questionnaires evaluated the neighborhood characteristics through physical facilities of a place, guardianship of a place and social interaction of people at a place. The structure of the questions was closed-ended.

3.6 Piloting

A pilot study was conducted in Ruiru Sub-county in Kiambu County. This study aimed at minimizing possible challenges such as variability among respondents drawn from

different areas, errors and possible response problems during the actual study. The pilot study enabled classification of instructions, determination of appropriate initiatives of independent variables to avoid a range effects while determining reliability and validity levels of the instruments. A sample of 20 respondents were used.

3.6.1 Reliability

Reliability concerns consistency of results when simulated with different studies in diverse settings (Bryman, 2012). To achieve reliability, the researcher conducted a pilot study in Ruiru Sub-county. This ensured clarity of instruments and modification of items found to be inadequate and vague. The reliability of the instrument was estimated using Cronbach's alpha and then computation of correlation coefficient of questionnaires for each variable. Reliability of the instrument was set at significance level of 0.7. See the reliability calculations in Table 1.

Table 1: Reliability Analysis

Variables	Cronbach's Alpha	Comments
Physical facilities	0.741	Accepted
Guardianship	0.720	Accepted
Social interactions	0.743	Accepted

After the pretest, the entire alpha figures were above 0.7 as shown in Table 1. Physical facilities had a Cronbach's alpha figure of 0.741, guardianship had an alpha figure of 0.720 and 0.743 was for the social interactions. Consequently, the entire Cronbach alpha figures were established to be more 0.7 for the entire variables and thus the concept (reliability) was established to be adequate. Based on the outcomes in Table 1, it is evident that the study instrument was consistent with Cronbach's alpha figures of over 0.7. These findings are in agreement with Mugenda and Mugenda (2003) notion that a constant of 0.6 to 0.7 is usually acknowledged rule of thumb that shows adequate reliability and 0.8 or higher shows good dependability.

3.6.2 Validity

The pilot study prior to the actual study was conducted to ensure validity of the research instrument. Questionnaires were subjected to experts' opinion. Face validity was enhanced by using headings that are linked to the study topic and research objectives in the questionnaires. The headings were bolded and clearly written in all questions for

each variable. Content validity was enhanced by ensuring that the literature reviewed and questionnaires constructed, fully represented the neighborhood characteristics and their influence on crime.

3.7 Data Collection Procedure

Appointments with the Deputy County Commander and chiefs were booked prior to date of administering questionnaires. Business owners and area residents were approached in their respective business places and residences respectively and their audience sought. The questionnaires were then distributed to the respondents by the researcher who explained the instructions and assured them of confidentiality and gave them time to fill the questionnaire. Finally, the filed in questionnaires were collected for sorting and final data analysis.

3.8 Ethical Considerations.

Ethics clearance was obtained from Chuka University Ethics Review Committee as well as research permit from National Commission for Science, Technology and Innovation (NACOSTI). Authorization letter was obtained from Thika West Deputy County Commander. The letters were used by the researcher for introduction to various respondents. The rights of research participants were recognized and respected. The study involved safe guarding respondents from unauthorized disclosure of information given during data collection. The respondents were assured high level of confidentiality since personal identification information was not given to other people and no names were written on the questionnaire. Informed consent was verbally acquired as certain respondents were illiterate or semi-literate.

3.9 Data Analysis and Presentation

Completed questionnaires were checked for completeness and consistency, then later coded. Coding involved the assigning of a code number to each answer in the questionnaire so that reactions could be put into limited number of classes (Kothari, 2004). It was then entered in the computer software SPSS version 21.0 for analysis. Descriptive statistics (percentages and frequencies) was used in data analysis. The inferential statistics of categorical regression was used to determine the influence particular indicators in each of the three objectives. Linear regression model was then

used to establish the general influence of predictor variables (Physical facilities, Guardianship and Social Interactions) on crime commission. According to Mugenda (2008) linear regression analysis is used to measure statistical association between independent variable and dependent variable. Frequency counts of the responses were gotten to generate data about the respondents and to demonstrate the overall trend of outcomes on the several variables that were under study. Estimated multiple linear regression model was used to analyze the data where hypotheses were tested using t-test while the overall significance of the model was tested using F-test at 5% significance level. The analyzed data was presented using tables.

Table 2: Methods of Data Analysis

Research hypotheses	Independent variable	Dependent variable	Statistical test
H_{01}: There is no statistically significant relationship between facilities (physical characteristics) associated with a place and crime commission	Built environment Natural environment	Crime commission	Frequencies Percentages Categorical regression Linear regression
H_{02}: There is no statistical significant relationship between guardianship of a place and crime commission	Guards CCTV Security checks Security lights Police patrol	Crime commission	Frequencies Percentages Categorical regression Linear regression
H_{03}: There is no statistical significant relationship between social interaction of people in a place and crime commission	Social groups Social networks Frequency of visitation Communal engagements	Crime commission	Frequencies Percentages Categorical regression Linear regression

3.10 Model Specification

Regression model comprising of three independent variables was employed in this study. These included; physical facilities, guardianship and social interactions while the dependent variable was crime commission in Kiambu County, Kenya. The multiple linear regression model was applied to determine the relationship between neighborhood characteristics and crime commission in Kiambu County, Kenya.

The study employed a multiple linear regression model of the form;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

Where Y = Crime commission

B_0 = Intercept

B_1, B_2, and $B3$ = Coefficient of parameter estimates

X_1 = Physical facilities

X_2 = Guardianship

X_3 = Social interactions

3.11 Diagnostic Tests

The diagnostic tests are the measures that help in the identification or detection of the presence of any econometric problem in the analyzed data. Such tests are helpful since they assist the researcher to take the correct measure hence avoiding possibility of coming up with spurious results. Some of the problems that were checked included; Normality, Multicollinearity, Autocorrelation and Heteroscedasticity.

3.11.1 Normality Test

Linear regression model assumes that the error term in the model is normally distributed. It assumes that the error term should be normally distributed with a zero mean and constant variance for all values. To test for normality of the data, coefficient of skewness and kurtosis statistics were used so as to evaluate whether data was normal. The application of linear regression model is validated on the grounds of normally distributed data. This enhances increased reliability of the findings. For normality of data, the skewness value should be within the acceptable range of ±3 (Aczel & Sounderpadian, 2002). The findings are presented in Table 3.

Table 3: One-Sample Kolmogorov-Smirnov Test

Indicator	Neighborhood Characteristics	
N	400	
Normal Parameters a,b	Men	3.8638
	Std. Deviation	0.8055
Most Extreme Differences	Absolute	0.183
	Positive	0.123
	Negative	-0.183
Kolmogorov-Smirnov Z	1.933	
Asymp. Sig. (2-tailed)	0.001	

K-S test was employed to choose if a sample emanates from a population with a totally stated constant distribution. Decision making procedure in K-S trial is if the figure Sig<0.05 then the statistics is normal and if the value Sig. > 0.05 then the data is not normal (Costello & Osborne, 2015). Based on the output coefficient, the gotten value of sig of the neighborhood characteristics is 0.001, signifying that the value of the variable sig. < 0.05. Consequently, it is resolved that the data is normal and that it does not diverge significantly from the normal distribution and for this reason it was secure to employ statistical tests and processes that adopt normality of the variables.

3.11.2 Multicollinearity Test

Neeleman (1973) explains that Multicollinearity arises in a situation where there is a general interrelation among the explanatory variables. Presence of multicollinearity makes almost impossible to separate the effect of each independent variable on the dependent variable. The greater the multicollinearity between two variables, the less precise is the approximations of distinct regression parameters (Aczel & Sounderpadian, 2002). The study tested the presence of multicollinearity using variance inflation factor (VIF) and coefficient of determination- (R^2). If VIF is less than 10 then there is no multicollinearity between explanatory variables. Similarly, if R^2 is high in excess of 0.8 with few significant t-ratios then multicollinearity is likely to be present. Multicollinearity was eliminated by transforming the variables.

3.11.3 Autocorrelation Test

Autocorrelation happens when the changes of the error term are chronologically reliant. Based on the expectations of Classical Linear Regression Model, the disruption happening at any point of observation should not be related with any other disturbance happening at alternative point at the set of observation (Bera & Kim, 2002). Autocorrelation leads to prejudices and discrepancy of parameter approximations. Autocorrelation is detected by employing Durbin Watson (DW) test. A DW of zero suggests that there subsists positive autocorrelation, whereas DW equal to four infers great negative correlation level. A DW value ranging between 2 -2.5 indicates that there is no correlation. Existence of autocorrelation was to be eliminated by employing correct specification of functional form of the model.

3.11.4 Heteroscedasticity Test

Heteroscedasticity arises when the error terms does not have constant variance. It can be caused by measurement errors and existence of sub-population differences or other interaction effects. Heteroscedasticity does not lead to biased parameter estimates. However, the standard errors are biased if Heteroscedasticity is present. This in turn leads to bias in test statistics and confidence intervals. Heteroscedasticity violates assumption number four of classical linear regression model which states that there must be constant variance, that is, the disturbances u_i appearing in the regression function are homoscedastic. In this study, the researcher tested Heteroscedasticity by use of residual plots and White Heteroscedasticity test to establish whether the residual have a constant error variance. A residual plot is a graph of regression standardized residuals against regression standardized predicted variables. Heteroscedasticity is present when the widths of the residuals increases or decreases as the predicted variables increases. If the P-value of the White Heteroscedasticity test is less than 0.05, then Heteroscedasticity is present.

CHAPTER FOUR
RESULTS, FINDINGS AND DISCUSSIONS

4.1 Response Rate

The response rate is presented in Table 4. The study sampled 400 respondents and successfully received responses from 322 respondents. The instruments were complete and were taken as useful for data analysis. This was a representation of 80.5% of the respondents.

Table 4: Response Rate

Category	Frequency	Percentage (%)
Responded	322	80.5
Did not respond	78	19.5
Total	400	100.0

The Seventy-eight (78) questionnaires which is a translation of 19.5% were dropped because were defective by way of having multiple entries in a single question, or being incomplete. This was a reliable representation of the targeted populace therefore satisfactory for the study analysis. Mugenda and Mugenda (2012) contend that 50% response rate is adequate, 60% is good, while 70% and above is regarded to be excellent. This suggests that the response level of 80.5% was suitable and worthy for analysis, making deductions and recommendations.

4.2 Demographic Data

This section presents a brief description of the demographic characteristics of the study sample. Such description is considered to be very important in providing a better understanding of the respondents included in the study and therefore provide foundation for a detailed discussion of the results based on the stipulated objectives of the study. The demographic characteristics included gender, age and level of education for the respondents. The study also sought to know the longevity of living in the neighborhoods among the respondents.

4.2.1 Gender Distribution of Respondents

The study sought information on the gender of the respondent. This information is presented in Table 5. The information in Table 5 shows that 50.3% of respondents were female whereas 49.7% of the respondents were male.

Table 5: Gender Distribution of Respondents in Thika West Sub-county

Category	Frequency	%
Male	160	49.7
Female	162	50.3%
Total	322	100

The results means that, the opinions conveyed in these findings are gender sensitive and can be taken as illustrative of the views of both genders. Considering the statistics of the Kenya Population Census 2019, women in Thika West Sub-county are more than men. This is evident in this research work as more women came out to respond to questionnaires as compared to men.

4.2.2 Age of Respondents

Age is an inherent attribute of individuals and represents the most basic type of age demographic information collected about the individuals in surveys. Age also form the basis of the most analyses of the social and demographic features of the population. Information on the distribution of the population by age was valuable in this study for taking stock of the current state of population with regard to experiences of neighborhoods characteristics and their influence on crime commission. For example, experiences of respondents regarding the effectiveness of a variety of social interactions towards crime regulations and other guardianship measures may vary across age. The results obtained revealing the age distribution of the respondents is shown in Table 6.

Table 6: Age Bracket of Respondents in Thika West Sub-county

Age category	Frequency	Percentage (%)
18 – 24 Years	41	12.7
25 – 30 Years	84	26.1
31 – 35 Years	95	29.5
36 – 40 years	78	24.2
41 and above Years	24	7.5
Total	322	100

The study established that 12.7% of the respondents were aged between 18 to 24 years, 26.1% of the respondents were aged between 25 to 30 years, 29.5% of them were aged between 31 to 35 years, 24.2% were aged between 36 to 40 years and 7.5% were 41 years and above. Significant differences exist between the age profiles of respondents within Thika West Sub-county. While people of all ages are present in a geographical

space, youths continue to be over-represented especially in Thika West Sub-county being an urban area. One of the explanation for the over-representation of youths in such a setting is rural urban migration. As youths complete tertiary education and some secondary education, most of them relocate to urban areas to seek for employment opportunities.

4.2.3 Education Level

The study sought to establish the education levels of the respondents. Education level is a vital factor to consider when examining the social interactions. Education is an essential element in shaping the character of individuals. Chakraborty (2018) points out that education is instrumental to social change. Such change includes change in nature, social institution, social behavior or social relations. This changes plays an important role in shaping the environment and its influence on crime. The findings are as shown in Table 7.

Table 7: Education level of Respondents in Thika West Sub-county

Education level	Frequency	%
None	14	4.3
Primary level	15	4.7
Secondary level	96	29.8
Tertiary level	197	61.2
Total	322	100

The results in Table 7 shows that, 61.2% of the respondents had a college education, 29.8% had reached secondary school, 4.7% had primary education and 4.3% never went to school. These findings mean that, most of the respondents had college level of education.

4.3 Physical Environment and Crime Commission

The first objective of the research was to determine the influence of physical facilities – built environment and natural environment- on crime. The respondents were requested to give their views on the influence of neighborhood facilities on crime commission. The information in Table 8 shows their responses.

Table 8: Area residents' Responses on the Influence of Physical Facilities on Crime Commission

Statement	SA		A		N		D		SD	
	F	%	F	%	F	%	F	%	F	%
Existence of unregulated number of bars at a place attract crime.	129	40.1	97	30.1	39	12.1	43	13.4	14	4.3
Existence of abandoned buildings in a town attract crime.	95	29.5	121	37.6	53	16.5	43	13.4	10	3.1
Areas surrounding public parks experience high number of crime rates.	70	21.7	86	26.7	99	30.7	41	12.7	26	8.1
High number of people who are aware of the facility at a place attract crime	63	19.6	77	23.9	110	34.2	51	15.8	21	6.5
Places whose facility brings together large number of people attracts crime	71	22.0	119	37.0	60	18.6	54	16.8	18	5.6
Facilities that involve a lot of cash transactions attracts crime	85	26.4	127	39.4	65	20.2	33	10.2	12	3.7
Areas neighboring forests are at high risk of experiencing crime	78	24.2	85	26.4	71	22.0	51	15.8	37	11.5
Bushy neighbourhood are at high risk of experiencing crime	111	34.5	95	29.5	46	14.3	51	15.8	19	5.9

SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree

An analysis of Table 8 shows that 129 (40.1%) of the respondents strongly agreed that existence of unregulated number of bars at a place attract crime. Another 95 (29.5%) of the respondents strongly agreed while 121 (37.6%) just agreed that existence of abandoned buildings in a town attract crime. Almost half (48.4%) of the respondents at least agreed (26.7% strongly) that areas around public parks experience high rates of crime.

This implies that to a greater extent respondents agree that presence of unregulated number of pub establishment, abandoned buildings have influenced and increased incidences of crime in Thika West Sub-county. The findings are concordant with

Wright and Decker (1997) and Tilley *et al*. (2004) who argued that closeness to exotic dance clubs and unregulated number of pubs provide ample opportunities for crimes such as robbery as offenders would target drunk and less suspecting persons. Tilley *et al*. (2014) add that proximity to relaxation and food outlets increases the likelihood of victimization. They also add that potential offenders prey on travelers around deserted bus stops and train stations.

Pub establishments is interpreted to influence the cause and spread of wrong doing. Increased alcohol consumption leads drunkenness, and consequent harm, involving antisocial behavior. Besides, a drunkard person is a suitable prey for a potential offender waiting by as little effort is required to mug, rob or assault him/her. Additionally, likely offenders disguise as customers inside pub establishments with the aim of engaging in offending activities at the nearby environ. The abandoned buildings then acts as hideout for the criminals and concealment of stolen valuables. Presence of abandoned buildings are an indicator of social disorganization which is a greatest predictor of exacerbating crimes.

The findings in Table 8 reveal that 22.0% and 37.0% strongly agreed and just agreed, respectively, that the higher the number of people who are at a place, the higher the likelihood that crime would occur. This an implication large number of people in place brings together both criminally motivated individuals and likely victims. St. Jean's (2007) study found that burglars are most attracted to street blocks that are characterized by such crowded business locations as beauty salons, takeaway cafeterias, banks, alcohol stores, gas stations, and retail shops among others. Crowding provides for potential victims and therefore attracts potential offenders (Cohen & Felson 1979; Brantingham & Brantingham, 1995). A multitude of people at a place leads to reduced chances of natural surveillance and subsequently, guardianship in general.

More than half (65.8%) of the respondents agreed (26.4% strongly), that facilities that involve cash transactions attract crime. The results means that availability of cash is an enticing target for a probable offender. In relation to businesses that operate until late night, 28.9% of the respondents strongly agreed that they do attract crime while 38.5% just agreed that they do not. This implies that to a greater extent respondents agree that

crime increase in Thika West Sub-county is as a result of businesses that operates until late night. At night, most of the streets are deserted and thus reduced surveillance, making crime more likely. These results are consistent with the study by Bernasco and Block (2011), who found that business activities such as, pubs, food cafes, alcohol stores, and grocery stores, among others have a spatial criminal effect on street burglaries. As these business activities mostly involve in cash transactions and at times extends extend beyond normal operating hours.

The results in Table 8 indicate that half (50.6%) respondents agreed (24.2% strongly), that forest areas attract crime. Additionally, 22.0% of the respondents were neutral on whether forest areas attract crime while 15.8% and 11.5% of them disagreed and strongly disagreed that forest areas attracts crime. In relation to bushy neighborhoods creating an elevated risk of experiencing crime, 64% of the respondents agreed (34.5% strongly). Further responses from the respondents reveal that 15.8% and 5.9% disagreed and strongly disagreed, respectively, that bushy neighborhoods are at high risk of experiencing crime.

Donovan and Prestemon (2012) conducted a study on the influence of trees on crime in Portland. They established that unlike taller trees, smaller tress increase the likelihood of crime by blocking view and thereby decreasing the chances that the offender will be apprehended. Jorgensen, Ellis and Ruddell (2012) add that trees and bushes that might obstruct the view and conceal criminals are associated with increased fear of crime. In another study, Kuo, Bacaicoa and Sullivan (1998) found that vegetation that obstructs view, such as shrubs and bushes, causes more fear of crime than non-view obstructing vegetation such as grown trees. Yet another study on safety ratings around 180 car park sites found that the more an area was depicted as enclosed by vegetation, the lower the perceived safety (Shaffer & Anderson, 1985).

4.3.1 Regression Analysis of the Influence of Physical Facilities on crime commission

Regression analysis was conducted on the relationship between crime commission and various physical facilities variables. The predictor variables for physical facilities were, unregulated pub establishments, abandoned buildings, public parks, facility brings

together large number of people, facilities that involve a lot of cash transactions, neighborhood forests and bushy neighborhoods. The findings are presented in Table 9.

Table 9: Categorical Regression Coefficients for Indicators of Physical Facilities on Crime Commission

Physical Facilities	Beta	Std. Error	Df	F	Sig.
Existence of unregulated number of bars at a place attract crime.	0.27	0.05	1	18.75	0.00**
Existence of abandoned buildings in a town attract crime.	0.17	0.04	1	4.91	0.01*
Areas surrounding public parks experience high number of crime rates.	0.01	0.04	1	0.01	0.93
High number of people who are aware of the facility at a place attract crime	0.08	0.04	1	0.39	0.53
Places whose facility brings together large number of people attracts crime	0.14	0.04	1	1.54	0.20
Facilities that involve a lot of cash transactions attracts crime	0.22	0.09	1	5.54	0.02*
Areas neighboring forests are at high risk of experiencing crime	0.11	0.12	1	0.80	0.37
Bushy neighbourhood are at high risk of experiencing crime	0.17	0.07	1	5.39	0.00**

The results on Table 9 indicate that only four of the independent variables had a statistically significant effect on crime commission (unregulated number of bars, abandoned buildings, facilities that involve a lot of cash transactions and bushy neighbourhood). From the results, it was revealed that the strongest predictor of crime commission was existence of unregulated number of bars and bushy neighbourhood. The findings are consistence with Roncek and Bell, (1981) and Block and Block (1995) who established that, incidences of crime occurred in alcohol consumption locations. This is corroborated by Langley, Chalmers and Fanslow, (1996) who established that 10 percent of aggravated assaults occurred in or around liquor outlets. Briscoe and Donnelly (2001) observed that alcohol drinking facilities were ranked third as the most often premises at which assault cases were recorded. Similarly, ten percent of assault incidents were documented by the police as happening on alcohol consumption buildings (Fitzgerald, Mason & Boryzcki, 2010).

4.4 Guardianship and Crime Commission

The study's second objective was to establish the influence of guardianship on crime commission amongst the respondents in Kiambu County. The study sought respondents' opinion on the influence of various safety measures on crime commission. The results are depicted in Table 10.

Table 10: Area residents' Responses on the Influence of Guardianship on Crime Commission

Statement	S.A		A		N		D		SD	
	f	%	F	%	F	%	F	%	f	%
Presence of closed-circuit television cameras in a building discourages crime.	137	42.5	115	35.7	35	10.9	14	4.3	21	6.5
Absence of security lights at a place attracts crime	177	55.0	88	27.3	23	7.1	16	5.0	18	5.6
Lack of security checks at major entry points at a place attracts crime.	119	37.0	97	30.1	57	17.7	22	6.8	27	8.4
Presence of police patrol at place discourages potential offenders	157	48.8	96	29.8	40	12.4	17	5.3	12	3.7
Presence of security guards at a building discourages potential offenders.	130	40.4	119	37.0	46	14.3	14	4.3	13	4.0
Presence of locked buildings discourages crime.	106	32.9	65	20.1	73	22.7	34	10.6	44	13.7

SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree

An analysis of Table 10 shows that, majority (78.2%) of the respondents agreed (42.5% strongly), that presence of Closed-Circuit Television cameras in a building discourages crime. This is in concurrence with McLean, Worden and Kim (2013) who established that CCTV produced a substantial decrease of violent crime and disorder. Besides, La Vigne, Lowry, Markman, and Dwyer (2011) found that, out of the seven CCTV systems analyzed in three US cities, four had a significant reduction on crime. Furthermore, results reveal that 177(55.9%) of the respondents strongly agreed and 88(27.3%) of them just agreed that absence of security lights at a place attracts crime. These results

are in agreement with Hoyt (2005) who contend that, the installation of street lights reduces the possibility of crime by rendering public places more physically accessible and visible to the public. This is affirmed by Atkins, Husain and Storey (1991) who opine that enhanced street lighting will encourage persons to notice suspicious activity, increase opportunities for surveillance, and therefore will act as a crime deterrent.

More than half (67.1%) of the respondents both under "strongly agreed" and "agreed" were of the opinion that lack of security checks at major entry points at a place attracts crime. Further findings reveal that 157(48.8%) and 96 (29.8%) strongly agreed and just agreed, respectively, that presence of police patrol at place discourages potential offenders. Weisburd (2015) examined what would transpire in a space that did not have police, where police conducted random patrols and where the police concentrated with reduced and increased strength on crime hot spots. The findings indicated that areas with police patrolling arbitrarily had less robberies as compared to places that did not have police. This is in agreement with Hoyt (2005) who contends that issuance of "park and walk" tasks that escalates officer visibility by tactically parking police cars and using foot and bike patrols to crime prone areas reduces the probability of crime.

An overwhelming 77.4% of the respondents at least agreed (40.4% strongly), that presence of security guards at a building discourages potential offenders. This is in agreement with Felson (1995) who opines that an owner-occupied apartment building acts to discourage crime, but when the proprietor no longer lives in or close to the owned structure, depressing crime becomes problematic. Besides, when no one is engaged to execute that role, criminality becomes more probable. However, when someone is so hired, security increase (Eck, 1994). In relation to presence of locked buildings discouraging crime, 32.9% and 20.1% of the respondents "strongly agreed" and "agreed" respectively, that they do attract crime.

The results imply that more than half of the respondents agreed that all guardianship measures put in places reduces crime within certain neighborhoods of Thika West Sub-county. Police patrol, presence of security guard and Closed Circuit Television cameras increases the risk of being caught. Better lighting of streets encourages more people to use the street and thus escalated witnesses of a crime in case of one happening. More

usage of a street implies increased chances of direct intervention in a suspicious activity or indirect intervention by calling for police. A probable offender would therefore not prefer to engage in an illegality where such measures are in place as the cost of crime is high.

4.4.1 Regression Analysis of the Influence of Guardianship on crime commission

Categorical regression was used for analysis. Guardianship represented the independent variable whose indicators are closed-circuit television cameras, security lights, security checks, police patrol and security guards. The model was robust with scores as follows; (Adjusted R^2=0.746, F=38.86, p=0.00) at $p \leq 0.05$. This meant that the model could explain 74.6% of the variance sought in the relationship between guardianship measures and incidences of crime. Results indicated that closed-circuit television cameras (p=0.00), security lights (p=0.00), security checks (p=0.00), police patrol (p=0.00) and security guards (p=0.00). This is shown on Table 11

Table 11: Categorical Regression Coefficients for Variables of Various guardianship measures on crime commission

Guardianship measures	Beta	Std. Error	df	F	Sig.
Presence of closed-circuit television cameras in a building discourages crime.	0.29	0.04	`1	57.34	0.00**
Absence of security lights at a place attracts crime	0.35	0.04	1	93.10	0.00**
Lack of security checks at major entry points at a place attracts crime.	0.27	0.04	1	52.86	0.00**
Presence of police patrol at place discourages potential offenders	0.36	0.04	1	93.63	0.00**
Presence of security guards at a building discourages potential offenders.	0.29	0.04	1	57.34	0.00**

The results were highly significant with $p<0.05$ for all the indicators of guardianship used at various neighborhoods. This means that most of the respondents perceived that if neighborhoods are well protected, the crime incidences will be minimal. This is in

agreement with Felson (1995) who found that crime occurrence at a place is less when valuables are directly monitored by guardians, wrongdoers by handlers and locations by managers.

4.5 Social Interactions of People and Crime Commission

The study's third objective was to establish the influence of social interaction on crime commission amongst residents of Kiambu County. Respondents were requested to give their views on frequency and likelihood of their participation in the various activities in their neighborhood, circle of acquaintances or families. The results are as shown in the Table 12 and 13 respectively.

Table 12: Frequency of Area Residents Participation in Communal Activities

Statement	VO		O		NS		S		N	
	F	%	f	%	f	%	f	%	F	%
Caring for sick or older people	76	23.6	95	29.5	35	10.9	78	24.2	38	11.8
Looking after children	74	23.0	78	24.2	43	13.4	76	23.6	51	15.8
Participating in cultural activities	65	20.2	74	23.0	55	17.1	68	21.1	60	18.6
Voluntary associations	47	14.6	83	25.8	53	16.5	90	28.0	49	15.2
Frequency of neighbourhood visitation	27	8.4	92	28.6	40	12.4	125	38.8	38	11.8

V.O=Very Often, O= Often, N.S = Not Sure, S= Sometimes, N=Never

According to data in Table 12, the respondents very often (23.6%) cared for the sick or older people, 29.5% of them did often cared for the sick or older people. However, 35 (10.9%) of the respondents were not sure if they cared for the sick or older people. The results also show that, 24.2% and 11.8% of the respondents sometimes and never respectively participated in caring for the sick or older people in the neighborhood. In relation to looking after children, 74(23.0%) and 78 (24.2%) of the respondents very often and often, respectively, looked after children. 13.4% and 23.6% were not sure and sometimes, respectively, cared for the children. Moreover, 15.8% of the respondents never looked after children.

The results in Table 12 indicate that, 20.2% of the respondents very often participated in cultural activities. 23.0%, 17.1%, 21.1% and 18.6% of the respondents reported that

they often, not sure, sometimes and never, respectively, participated in cultural activities in the neighborhood. However, 14.6% of the respondents reported that, very often participated in voluntary associations. 25.8%, 16.5%, 28.0% and 15.2% of the respondents reported that they often, not sure, sometimes and never, respectively, participated in voluntary associations in the neighborhood. Moreover, 28.6% of the respondents often visited their neighbors, 12.4% of the respondents were not sure if they visited their neighbors, only 8.4% of the respondents reported that, very often do they visit their neighbors. 38.8% of residents seldom visited their neighbors while 11.8% of area residents never visited their neighbors to discuss security issues.

This implies that slightly over half (53.1%) of area residents at least often (23.6% very), cared for the sick or old people. About half (47.2%) of area residents often (23.0% very), looks after children. However, less than half (43.1%, 40.4% and 37%) often (20.2%, 14.6% and 8.4% very) participated in cultural activities, in voluntary associations and visited their neighbors, respectively. This is in agreement with Bursik, (1988) and Greenberg *et al*. (1985) who found that, infrequent contact may intensify the capacity of area residents to take part in informal surveillance of communal spaces. This leads to development of movement–governing guidelines like evading vulnerable spaces and to involve in direct intervention by interrogating inhabitants and outsiders about any rare activity and cautioning children for intolerable conduct.

Additionally, Warren (1969) observed that, in areas where a greater fraction of the occupants intermingled on a weekly basis and where dwellers perceived unanimity within the community experienced less insurgence activity and intensified counter riot doings. On the contrary, Bellair (1997) contends that the supposition that repeated contact is most significant or only accountable for breeding communal control may be void in modern urban environments. Respondents' likelihood of intervention in variety of circumstances is presented in Table 13.

Table 13: The Likelihood of Intervention in Variety of Circumstances

Statement	VL		L		NS		U		VR	
	F	%	F	%	f	%	f	%	f	%
Neighbours can be counted on to intervene when children are skipping school and hanging out on a street corner.	46	14.3	115	35.7	50	15.5	71	22.0	40	12.4
Neighbours can be counted on to intervene when children are spray-painting graffiti on a local building	37	11.5	105	32.6	49	15.2	86	26.7	45	14.0
Neighbours can be counted on to intervene when children are showing disrespect to an adult	59	18.3	93	28.9	48	14.9	82	25.5	40	12.4

VR = Very Likely, L = Likely, NU = Not Sure, U= Unlikely, VU = Very Unlikely

An analysis of Table 13 shows that, 14.3% of the respondent were very likely to intervene when children are skipping school and hanging out on a street corner. Area residents also are likely 115(35.7%) to intervene when children are skipping school and hanging out on a street corner. However, when it comes to likelihood of neighbors' intervention in children spray-painting graffiti on a local building, 11.5% of area residents reported that, the neighbors were very likely to intervene. 32.6%, 15.2%, 26.7% and 14.0% reported that the neighbors were likely, not sure, unlikely and very unlikely to intervene in case of spray-painting on local buildings, respectively, for corrective measures. Almost half 47.2% of the respondents are likely (18.3% very likely and 28.9% likely) were likely to be counted on to intervene when children are showing disrespect to adults. 14.9%, 25.5% and 12.4% of the respondents reported that the neighbors were, not sure, unlikely and very unlikely, respectively, to be counted on to intervene when children are showing disrespect to adults.

On average, (50%) of the area resident are likely (14.3% very), to intervene when children are skipping school and hanging out on a street corner. 44.1% of the respondents are likely (11.5% very) to intervene in case of children spray-painting on local buildings. Almost half (47.2%) are likely (18.3% very) to be counted on to intervene when children are showing disrespect to adults. This is an implication that occupants of the respective neighborhoods can likely intervene in a variety of intolerable behavior to a certain degree. According to Mazerolle, Wickes and McBroom (2010), community based crime prevention programs creates community controls,

heightens wellbeing and gives a logic of community and are aimed at communal capacity construction, involving residents, and heightens dwellers' feelings of belonging, self-importance and possession of the community. Sampson *et al.* (1997) do concur that, law-breaking in overall and vehemence in precise, comes from the disparity in ability of places to realize the mutual morals of residents and uphold effective societal controls. This is contrary to Clinard and Abbott's (1976) outcomes which show that, in ethnically varied societies, widespread friendship connections may truly destabilize crime regulation by heightening disclosure to different value systems.

4.5.1 Regression Analysis of the Influence of Social Interactions on crime commission

Categorical regression was used to analyze the social interactions among residents of a neighborhood and perception of safety. To achieve this, respondents were requested to indicate the extent of the likelihood that their neighbors could be counted on to take action under three scenarios. They included: Children skipping school and hanging out on a street corner, children spray-painting graffiti on a local building and children showing disrespect to an adult. The findings of the results are presented in table 14. The findings show that the overall model fit score was (Adjusted R^2=0.128, F=7.39, p=0.00) at p=0.05 which showed that the model represented 12.8% of the variance sought. The scores of the coefficient varied with children skipping school and hanging out on a street corners scoring (p=0.00), children spray-painting graffiti on a local building (p=0.27) children showing disrespect to an adult (p=0.0.01).

Table 14: Regression results of influence of Social interactions on Crime.

a) The goodness of fit

Multiple R	R Square	Adjusted R Square	Apparent Prediction Error
0.385	0.148	0.128	0.852

b) The overall significance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	32.35	5	6.47	7.39	0.00**
Residual	185.65	317	0.88		
Total	218.00	322			

c) Individual significance

Situations of Interventions	Beta	Std. Error	Df	F	Sig
Children skipping school and hanging out in a street corner	-0.30	0.09	1	10.01	0.00**
Children spray-paintings graffiti on buildings	-0.18	0.16	1	1.23	0.27
Children showing disrespect to an adult	0.18	0.09	1	4.36	0.01*

Dependent Variable: crime experience

According to the findings in table 14, children skipping school and hanging out in a street and Children showing disrespect to an adult both indicated negative but significant results with $p< 0.05$. This means that the likelihood of intervention when children skip school and hang out in streets and when children show disrespect to an adult inhibits crime occurrence in Thika West Sub-county, Kiambu County, Kenya. This is in agreement with Sampson (1989) who established that neighborhoods' associated with heightened levels of collective efficacy envisage significantly lower rates of violence. This is affirmed by Warner (2007) who established that social ties measured in terms of informal social controls such as the increased likelihood of intervention reduces crime incidences. Besides, the findings indicate that the likelihood of neighbors taking action when children spray-paintings graffiti on buildings is insignificant since $p>0.05$.

4.6 Model: Effect of Neighborhood Characteristics on Crime Commission

The study extracted the model summary which portrays the coefficient of determination. Table 15 shows the results of the model summary.

Table 15: Model Summary

Model	R	R-Square	Adjusted R-Square	Std. Error of the estimate
1	0. 797[a]	0.835	0 .873	0.269

From the model summary, $R^2= 0.835$ and adjusted R square 0.873 reveal that 87.3% change in crime commission can be explained by the changes of all the predictor variables. It shows that the independent variables had a strong explanatory power on

the dependent variable. On the other hand, 12.7% was explained by other factors influencing crime commission that were not part of this study. The results imply that neighborhood characteristics adopted contribute majorly to crime commission in the study area.

A model was run to assess the effect of neighborhood characteristics on crime commission in Thika West Sub-county, Kiambu County, Kenya. In the model, Physical facilities, Guardianship and Social interactions were used as explanatory variables while crime commission was included as the explained variable. The results are presented in Table 16.

Table 16: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	t-prob
	B	Std. Error	Beta		
(Constant)	.580	.189		3.079	.004
Physical facilities	.489	.093	.227	2.034	.000
Guardianship	.417	.102	-0.315	2.133	.000
Social interactions	.384	.133	-0.425	2.881	.000
Adj R^2	0.873				
Durbin Watson	2.48				[0.000]**
F-statistics	2.912				

Table 16 presents the regression results for the model. The F-statistic is 2.912 with a p-value of 0.000 < 0.05 at 5% significance level implying the overall significance of the model. This means that Physical facilities, Guardianship and Social interactions have significant influence on crime commission. The measure of goodness of fit given by Adjusted R-square is 0.873 implying that 87.3% of the variations in crime commission are explained by the explanatory variables. Results in Table 16 can be presented in the following regression equation.

The regression equation is;

$$Y = 0.580 + 0.227PF - 0.315G - 0.425SCI$$

Where,

Y = Crime commission

PF = Physical facilities

G = Guardianship

SCI = Social Interaction

The results in Table 16 indicate statistically significant effect of physical facilities on crime commission (t-prob 0.000< 0.05). The results equally show that, physical facilities has a positive contribution to a unit change in crime commission (β=0.227). This means that, *ceteris paribus,* a unit increase in physical facilities measured in terms of unregulated number of bars, abandoned buildings, commercial areas etc. leads to appreciation of crime commission by 22.7%. Therefore, the null hypothesis that there is no significant effect of physical facilities on crime commission in Thika West Sub-county, Kiambu County, Kenya was rejected and thus the alternative hypothesis accepted. The results are consistent with study by Mburu and Helbich (2016) who found that the existence of amenities like unoccupied households, train centers, pawnbrokers and pay day moneylenders amplified bike theft. To Groff and Lockwood (2014), disclosure to pubs and underpass stations was positively connected with violence, goods, and disorder crime at all distance thresholds from street sections. Groff and Lockwood concluded that facilities have a major impact on crime.

Similarly, the regression results in Table 16 indicates statistically significant effect of guardianship on crime commission at 5% level of significance, t-prob 0.000< 0.05. The results equally indicates that guardianship has a negative but statistically significant effect on a unit change in crime commission (β= -0.315). This means that, *ceteris paribus,* a unit increase in guardianship of people and property measured in terms of safety measures leads to decrease in crime commission by 31.5%. Therefore, increased guardianship by people impacts negatively on crime commission Thika West Sub-county in Kiambu County, Kenya. Thus, the null hypothesis that there is no significant effect of guardianship on crime commission in Kiambu County, Kenya was rejected and thus the alternative hypothesis accepted. These findings are similar to Cohen and Felson (1979) who considered guardianship as crime reducer. Guardianship keeps targets from lawbreakers. Sherman (1995) contends that when the wrongdoer and targets are in one place, just like eliminating petroleum—shielding it from the effect of high temperatures —averts fires, keeping offenders at bay from targets discourages criminality. The Secret Service security all over the place of the United State White House is a superb instance of guardianship. To Sherman, proper place guardianship

either lets wrongdoers and targets to coexist in one place without criminalities, or keeps probable offenders further away.

The regression results in Table 16 indicate statistically significant effect of social interactions on crime commission at 5% level of significance, t-prob 0.000< 0.05. The results equally indicates that social interactions has a negative but significant effect on a unit change in crime commission (β= -0.425). This means that, *ceteris paribus*, a unit increase in social interactions measured in terms of collaborative programs and frequency of interaction leads to decrease in crime commission by 42.5%. Thus, the null hypothesis that there is no significant effect of social interaction on crime commission in Kiambu County, Kenya was rejected and thus the alternative hypothesis accepted. This is in tandem with Kubrin and Weitzer (2003) study. Their results suggest that social ties such as local amity connections, leisure activities among neighbors, and attending local communal gatherings upturn dwellers' capability to get involved in societal control over persons in the community, consequently discouraging crime and disorder. Shehayeb (2010) notes that the more the occupants use neighborhood spaces and streets, the more the opportunity they know each other, the more control they acquire over the built environment, the less likely strangers can go unnoticed in the neighborhood. This makes it difficult for probable offender to engage crime.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The first objective was to establish the influence of physical facilities existing within a neighborhood on crime commission. The study involved three hypotheses statements. The first null hypothesis was that, there was no statistically significant relationship between physical facilities associate with a place and crime commission. After the study, it was concluded that, there exists a significant relationship between physical facilities found in the neighborhood and crime commission. Further, it was concluded that, some facilities influence multiple crimes more than others.

The second objective was to determine the influence of guardianship within a neighborhood on crime commission. The study used hypothesis to determine the relationship. The null hypothesis was that, there was no statistically significant relationship between guardianship of a place and crime commission. The study revealed that guardianship had a negative impact on crime commission. When the handler is looking over the lawbreaker, the place manager is looking over the criminogenic area, and the guardian is watching the target, crime commission in such neighborhood is unlikely to occur. The study also showed that, the impression that somebody is watching and could detect intolerable conducts, discourages the potential offender from engaging in a criminal activity.

The third objective was to establish how social interaction of people within a neighborhood influence crime commission. Using the null hypothesis to determine the relationship that there was no statistically significant relationship between social interaction of people in a place and crime commission, it was found that, there exists a significant relationship between social interaction of people and crime commission. The more residents of a neighborhood interact either informally or formally, the better they know each other. Thus the increase in the readiness of people within societies and neighborhoods to take actions about problems in their neighborhoods.

5.2 Conclusion

According to the findings above, the subsequent deductions were arrived at. Physical facilities that exist in a neighborhood are related to crime commission. Different

facilities attract different crimes. Some facilities attract more crimes than others. Facilities have a significant effect on crime at nearby places even controlling for socio-demographic variables. Secondly, guardianship has a negative impact on crime commission. It is clear that places or properties that have mechanisms of taking safety measures, have reduced number of crimes. And thirdly, there is a relationship between social interaction of people in a neighborhood and crime commission. Through social interaction, people know one another and frequently exercise interpersonal agreements for attaining desired objectives. Objectives are achieved by the fact that the persons involved are individually familiarized. Thus places characterized by solid social relations will experience greater trust amongst dwellers and collaboration in the implementation of societal customs against crime and delinquency.

5.3 Recommendations.

In accordance to the study findings, the following recommendations were made;

i. There is need to establish better communal engagements that are tailored to urban environment. These would enhance social interactions among residents. Thus promoting acquaintances and trust among residents. In the end they would work towards a common goal of looking after one another.
ii. Property owners should embrace installation of modern safety security measures on their premises to curb crime. Such measures should include the situational preventive measures.
iii. The security officers (police officers) in Kiambu County should enhance collaborative programs with members of the public. This would promote more interactions amongst the residents and between members of the public and police officers. This would enable the area residents to know one another and take necessary security measures to safeguard themselves and their property against crime.
iv. Urban city planners and architect should undertake mandatory course on the planning/designing the built environments which allows the occupants of that built environment to have a clear view of their surrounding both from outside and inside. This creates opportunity for natural surveillance of the environment.

5.4 Suggestion for Further Studies

Based on the study, the researcher suggests;

i. There is need for a comparative research that focuses on the influence of one type of physical facility on crime commission in different types of neighborhood.
ii. Further study should be conducted on neighborhood characteristics and their influence on crime commission in different geographical regions.
iii. A study should be conducted on the effectiveness of guardianship measures in crime hotspots.

REFERENCES

Abdullah, M. S., Mansor, M.N., Ahmad, R.M.Y., & Hussain, F.C. (2017). Social cohesion in Rukun tetangga (neighbourhood watch) in Hulu Langat, Selangor Malaysia. *Journal of Social sciences and Humanities. Special issue* 2.

Aksoy, E. (2017). Geography of Crime and Its Relation to Location: The City of Balıkesir (Turkey). IOP Conf. Series: *Materials Science and Engineering* 245 (2017) 072012.

Ammissah, M., Wemegah, T.D., & Okyere, F.T. (2014). Crime Mapping and Analysis in the Dansoman Police Subdivision, Accra, Ghana – A Geographic Information Systems Approach. *Journal of Environment and Earth Science,* Vol.4, No.20.

Andhoga, W., & MA Vole, J. (2017). "Influence of Nyumba Kumi Community Policing Initiative on Social Cohesion among Cosmopolitan Sub Locations in Nakuru County", *International Journal of Social and Development Concern* 1, 6/12: 65-76.

Ariel, B., Bland, M., & Sutherland, A. (2017). Lowering the threshold of effective deterrence'—Testing the effect of private security agents in public spaces on crime: *A randomized controlled trial in a mass transit system. PLOS one journal* Vol 12(12).

Armitage, R. (2002). *To CCTV or not to CCTV?* A Review of Current Research into the Effectiveness of CCTV systems in reducing crime.

Atkins, S., Husain, S., & Storey, A. (1991). The Influence of Street Lighting on Crime and Fear of Crime. *Crime Prevention Unit* Paper No. 28 London: Home Office.

Barolsky, V. (2016). Loving thy Neighbours" in times of Violence: Social cohesion and collective efficacy in South Africa. *Journal of Psychology in sociology*, vol. 51.

Beauregard, E., Rossm, D. K., & Proulx, J. (2007). A Descriptive Model of the Hunting Process of Serial Sex offender: A Rational Choice Perspective. A *Journal of Family Violence Springer.* J fam. Viol 22:449–463.

Bell, J. (1999). *Doing Your Research Project*. A Guide for First-Time Research in Education Aid Social Science (3rd edition) Buckingham; Philadephia Open University Press.

Bellair, P. E. (1997). *Social Interaction and Community Crime:* Examining the Importance of Neighbor Networks.

Bernasco, W. (2008). Them Again? Same-Offender Involvement in Repeat and Near Repeat Burglaries European, *Journal of Criminology*, 5(4), 411-431.

Bernasco, W., & Block, R. (2009). *Where Offenders choose to attack: A Discrete choice model of robberies in Chicago*. Criminology. 47(1): 93--130.

Bernasco, W., & Block, R. (2011). Robberies in Chicago: A Block-Level Analysis of the Influence of Crime Generators, Crime Attractors, and Offender Anchor Points. *Journal of Research in Crime and Delinquency* 48(1) 33-57.

Bernasco, W., & Jacques, S. (2015). Where do dealers Solicit Customers and sell them Drugs? A Micro-level Multiple Method Study. *Journal of Contemporary Criminal Justice,* 31, 376-408.

Block, R. L., & Block, C. R. (1995). *Space, Place and Crime:* Hot Spot Areas and Hot Places of Liqour-Related Crime.

Bloom L. (2018). *Advantages and Disadvantages of CCTV cameras.*

Bottoms, A. E. (2006). Incivilities, Offence, and Social Order in Residential Communities, in: A. von Hirsch and A. P. Simester (Eds) *Incivilities: Regulating Offensive Behaviour*, pp. 239–280. Oxford: Hart Publishing.

Braga, A. A., & Weisburd D. L. (2010). *Policing Problems Places: Crime Hotspots and Effective Prevention*. Oxford University Press. Inc.

Braga, A.A. (2007). "Policing Crime Hot Spots; in Preventing Crime," *Springer,* New York, 179-192

Brantingham, P. L., & Brantingham, P. J. (1995). Criminality of Place. *European Journal on Criminal Policy and Research, 3,* 5-26.

Brantingham, P. L., & Brantingham, P.J. (1984). *Patterns in Crime*. New York, NY: Macmillan.

Brantingham, P.L., & Brantingham, P.J. (1981). Mobility Notoriety and Crime: A Study in the crime patterns of urban nodal points. *Journal on environmental system, 11, 89–99.*

Briscoe, S., & Donnelly, N. (2001b). Temporal and regional aspects of alcohol-related violence and disorder. *Alcohol Studies Bulletin* (No. 1). Sydney: NSW Bureau of Crime Statistics and Research.

Bryman, A. (2012). *Social Research Methods*. 4th Ed.

Burns, L., Flaherty B., Ireland, S., & Frances M. (1995). Policing pubs: What happens to crime? *Drug and Alcohol Review* (1995) 14, 36%375.

Bursik, R. J. (1988). Social Disorganization and Theories of Crime and Delinquency: *Problems and prospects*. Criminology 26519-551.

Çam, T. (2014). Testing Social Disorganization Theory for the Causes of Index (Major) Crime Incidence among Turkish Juveniles. *Electronic Journal of Social Sciences,* 13(51), 329-345.

Caplan, J. M., & Kennedy, L. W. (Eds.) (2011). *Risk Terrain Modeling Compendium.* Newark, NJ: Rutgers Center on Public Security.

Capone, D. L., & Nichols, W. W. Jr. (1976). "Urban Structure and Criminal Mobility." *American Behavioral Scientist* 20:199-213.

Carling, A. (1992). *Social Divisions*. London: Verso.

Chilenski, S. M., Syvertsen, A. K., & Greenberg, M. T. (2015). Understanding the Link between Social Organization and Crime in Rural Communities. *Journal of rural and community development*, *10*(1), 109–127.

Churchland, P. M. (1989). A Neurocomputational Perspective. *The nature of mind and the structure of science.* Cambridge, MA: The MIT Press.

Clarke, R. V. (2008). *Improving Street Lighting to Reduce Crime in Residential Areas:* Problem-Oriented Guides for Police Response Guides Series Guide No. 8.

Clarke, R. V. (1995). Situational Crime Prevention. In Michael Tonry and David P. Farrington (eds.), *Building a Safer Society: Strategic Approaches to Crime Prevention*. (Crime and Justice: A Review of Research, Vol. 19.) Chicago: University of Chicago Press.

Clarke, R. V. (1997). *Situational Crime Prevention: Successful case studies* (2nd edition), Albany: Harrow and Heston.

Clarke, R. V. (1999). *Hot products: Understanding, anticipating and reducing demand for stolen goods*. London: Home Office, Policing and Reducing Crime Unit.

Clarke, R. V., & Cornish, D. B. (1985). Modeling offenders' decisions: A framework for policy and research. In M. Tonry & N. Morris (Eds.), *Crime and Justice: An annual Review of Research*, 16. Chicago, IL: University of Chicago Press.

Cohen D., Spear S., Scribner R., Kissinger P., Mason K., & Wildgen J. (2000). Broken windows and the risk of gonorrhea. *Am J Public Health*; 90: 230–236. doi:10.2105/ajph.90.2.230PMID:10667184.

Cohen, D.A., Mason, K., Bedimo, A., Scribner, R., Basolo, V., & Farley, T.A. (2003) Neighborhood Physical Conditions and Health. *Am J Public Health*; 93: 467–471. doi:10.2105/ajph.93.3.467PMID:12604497.

Cohen, L. E., & Felson, M. (1979). Social change and Crime Rate Trends: A Routine Activity Approach. *American Sociological Review*, *44*, 588-608.

Coleman, J. (1973). *The Mathematics of Collective Action*. London: Heinemann.

Community Oriented Policing Services. (2012). Community Policing Defined. U.S. Department of Justice. Washington, DC.

Cragalia, M., Haining, R., & Signoretta, P. (2004). Modelling High-Intensity Crime Areas: Comparison Police Perceptions with Offence/Offender Data in Sheffield. *Journal of Environmental and planning* vol.37.

Crewe, K. (2001) Linear parks and urban neighborhoods: A case study of the crime impact of the Boston South-West corridor. *Journal of Urban Design* 6 (3): 245 – 264.

Crompton, J. L. (2001). The impact of parks on property values: A review of the empirical evidence. *Journal of Leisure Research* 33: 1 – 31.

Cullen, F. T., & Agnew, R. (2006). *Criminological theory.* Los Angeles: Roxbury Publishing.

Davison, E., & Smith, W. (2003). Exploring accessibility versus opportunity crime factors. Sociation Today: *The Journal of the North Carolina Sociological Association*, 1(1).

Day, P., Breetzke, G., Kingham, S., & Campbell, M. (2012). Close proximity to alcohol outlets is associated with increased serious violent crime in New Zealand. *Australian and New Zealand Journal of Public Health,* 36(1), 48–54. https://doi.org/10.1111/j.1753-6405.2012.00827.x.

De Donder, L., De Witte, N., Buffel, T., Dury, S., & Verte, D. (2012). Social Capital and Feeling Feelings of Unsafety in Later Life: A Study on the Influence of Social Networks, Place Attachment, and Civic Participation on Perceived Safety. *Research on Aging*, 34(4) 425–448.

De Sousa, F. L. (2013). Does Crime Affect Migration Flows? *Papers in Regional Science*, Volume 93 Supplement 1 November 2014.

Donovan, G. H., & Prestemon, J.P. (2012). The Effect of Trees on Crime in Portland, Oregon. *Journal of Environment and Behavior* 44(1) 3–30.

Dora, T. M. (2009). Keberkesanan Program Rukun Tetangga Dalam Memupuk Perpaduan dan Integrasi Nasional. *Journal Perpaduan Jabatan Perpaduan Negara dan Integrasi Nasional (JPNIN).* Jilid 1 Bil. 1.

Dutkowska, N. S., & Leitner, M. (2017). Land Use Influencing the Spatial Distribution of Urban Crime: A Case Study of Szczecin, Poland. *International Journal for Geo-Information*. Vol 6, issue 3.

Eck, J. E. (1994). "*Drug Markets and Drug Places: A Case-Control Study of the Spatial Structure of Illicit Drug Dealing."* Unpublished Ph.D. dissertation, University of Maryland, Department of Criminology.

Eck, J. E. (1995). A General Model of the Geography of Illicit Retail Marketplaces. In J. E. Eck & D. Weisburd (Eds.), *Crime and Place: Crime Prevention Studies* (Vol. 4, pp. 67-95). Monsey, NY: Criminal Justice Press.

Eck, J. E. (2018). Regulation for High-Crime Places: Theory, Evidence, and Principles. *The annals of the American Academy*.

Eck, J. E., & Eck, E. B. (2012). Crime place and pollution: Expanding crime reduction options through a regulatory approach. *Criminology & Public Policy* 11 (2): 281–316.

Eck, J. E., & Guerette, R. T. (2012). Place-Based Crime Prevention: Theory, Evidence, and Policy. In *the Oxford handbook of crime prevention*, eds. Brandon Welsh and David Farrington, 354–83. New York, NY: Oxford University Press.

Eck, J. E., & Weisburd, D. (1995). *Crime Places in Crime Theory*. In Crime Pre-vention Studies, eds. John E. Eck and David Weisburd. Monsey, NY: Criminal Justice Press.

Eck, J. E., ed., & Weisburd, D. (Eds.). (1995). *Crime and place:* Crime prevention studies (Vol. 4). Monsey, NY: Criminal Justice Press.

Esbensen, F. A. (1987). Foot Patrols: Of what value? *American Journal of Police* 6 (1): 45-65.

Espey, M. & Owusu-Edusei, K. J. (2001) Neighborhood parks and residential property values in Greenville, South Carolina. *Journal of Agricultural and Applied Economics* 33: 487 – 492.

Farrington, D. P., Gill, M., Waples, S.J. & Argomaniz, J. (2007). The effects of Closed-circuit Television on Crime: meta-analysis of an English National Quasi-Experimental Multi-Site Evaluation. *Journal of Experimental criminology* 3:21-38.

Farrington, D.P., & Welsh, B.C. (2002). *Effects of improved street lighting on crime: a systematic review.*

Felson, M. (1987). *Routine activities and crime prevention in the developing metropolis.* Criminology 25(4): 911–931.

Felson, M. (1995). Those who Discourage Crime. In J.E. Eck & D. Weisburd (eds.), *Crime and Place: Crime Prevention Studies,* vol. 4. (pp. 53-66). Monsey, NY: Criminal Justice Press.

Felson, M. (2008). Routine activity approach. In R. Worley & L. Mazerolle (Eds.), *Environmental criminology and crime analysis* (pp. 70–77). Cullompton, UK:Willan.

Fennelly, L.J. (2017). *Effective Physical Security*. Fifth Edition.

Fischer, R.J., & Green, G. (2004). *Introduction to Security, 7 th Edition*. Burlington: Butterworth Heinemann.

Fitterer, J.L., Nelson, T.A., & Stockwell, T. (2015). A Review of Existing Studies Reporting the Negative Effects of Alcohol Access and Positive Effects of Alcohol Control Policies on Interpersonal Violence. Front. *Public Health* 2015, 3, 1–11.

Fitzgerald, J., Mason, A., & Borzycki, C. (2010). The nature of assaults recorded on licensed premises. *Bureau Brief* (No. 43). Sydney: NSW Bureau of Crime Statistics and Research.

Freudenburg, W. R. (1986). Density of Acquaintance and Community Research. *American Journal of Sociology*.

Garvin, E., Cannuscio, C., & Branas, C., (2012). *Greening vacant lots to reduce violent crime: a randomised controlled trial*. Inj Prev 19: 198–203. doi:10.1136/ injuryprev-2012-040439.

Gerell, M. (2018). Bus Stops and Violence, Are Risky Places Really Risky? *European Journal of Criminal Policy Research.*

Giil, S.K. (2009). An Evaluation of the Rational Choice in Criminology. *Journal of sociology and applications science V4(8),* 36-44.

Gill, M., & Spriggs, A. (2005). *Assessing the impact of CCTV*. London: Home Office (Research Study No. 292).

Green, L. (1996). *Policing Places with Drug Problems*, Thousand Oaks, CA: Sage.

Greenberg, S. W., William, M., & Williams, J. R (1982). Safe and Secure Neighborhoods: *Physical Characteristics and Informal Territorial Control in High and JAW Crime Neighborhoods*. Washington, D.C.: National Institute of Justice.

Groff, E., & McCord, E.S. (2011). The role of neighborhood parks as crime generators. *Security Journal*. DOI: 10.1057/sj.2011.1 Source: OAI.

Groff, E. R. (2011). Exploring 'near': Characterizing the spatial extent of drinking place influence on crime. *Australian & New Zealand Journal of Criminology* 44(2).

Groff, E. R., & Lockwood, B. (2014). Criminogenic facilities and crime across street segments in Philadelphia: Uncovering evidence about the spatial extent of facility influence. *Journal of Research in Crime & Delinquency*, 51, 277-314.

Gruenewald, P.J., Freisthler, B., Remer, L., Lascala, E.A., & Treno, A. (2006). *Ecological models of alcohol outlets and violent assaults:* Crime potentials and geospatial analysis.

Guerette, R. T., & Bowers, K. J. (2009). Assessing the extent of crime displacement and diffusion of benefits: *A review of situational crime prevention evaluations.* Criminology 47 (4): 1331–68.

Heath, A. (1976). *Rational Choice and Social Exchange*. Cambridge: Cambridge University Press.

Henry, D. B., Tolan, P. H., & Gorman-Smith, D. (2001). Longitudinal family and peer group effects on violence and nonviolent delinquency. *Journal of Clinical Child Psychology*, 30, 172-186.

Hirschfield, T., Birkin, M., Brunsdon, C., Malleson, N., & Newton A. (2014). How Places Influence Crime: *The Impact of Surrounding Areas on Neighbourhood Burglary Rates in a British City*. Urban Studies 51(5) 1057–1072.

Hollis-Peel, M. E., Reynald, D. M., Bavel, M., Elffers, H., & Welsh, B. C. (2011). Guardianship for Crime Prevention: A Critical Review of the Literature. *Crime, Law and Social Change*, *56*(1), 53-70.

Homans, G. (1961). *Social Behavior: Its Elementary Forms*. London: Routledge and Kegan Paul.

Hoyt, L. M. (2005). Do Business Improvement District Organizations Make a Difference? Crime in and Around Commercial Areas in Philadelphia. *Journal of Planning Education and Research* 25:185-199.

Hugenberg, F., Odhiambo, W.A., Mwita, A., & Opondo, D. (2007). Discussion. Firearm Injuries in Nairobi, Kenya: Who pays the price? Boston: *Journal of Public Health Policy* v 28.

IEBC, (2014). *Kiambu County Statistical Abstract* 2015.

Ihlanfeldt, K. (2003). Rail Transit and Neighborhood Crime: The case of Atlanta, Georgia. *Southern Economic Journal*. 70(2): 273–294.

Irvin-Erickson, Y. (2014). *Identifying Risky Places for Crime*: An analysis of the Criminogenic Spatiotemporal Influences of Landscape Features on Street Robberies (Doctoral dissertation). Graduate School, Rutgers University, Newark, NJ.

Ito, T.A., Miller, N., Pollock, V.E., Dawson, E., Earleywine, M., & Johnson, B.T. (1996). Alcohol and Aggression: A Meta-Analysis on the Moderating Effects of Inhibitory Cues, Triggering Events, and Self-Focused Attention. *Am. Psychol. Assoc.*

Jeffrey, C.R. (1977). *Crime Prevention through Environmental Design.* (2nd edition). Beverly Hills: Sage.

Johnson, S. D., & Bowers, K. J. (2004). The Stability of Space-time Clusters of Burglary. *The British Journal of Criminology*, 44, 55–65.

Jorgensen, A., Hitchmount, J. & Dunnett, N. (2005). Living in the urban wildwoods: A case study of Birchwood, Warrington New Town, UK. In Wild Urban Woodlands: New Perspective on Urban Forestry.

Jorgensen, L J., Ellis, G.D., & Ruddell, E. (2012). Fear Perceptions in Public Parks: Interactions of Environmental Concealment, the Presence of People Recreating, and Gender. *Journal of Environment and Behavior* 45(7) 803–820.

Karn, J. (2013). Policing and Crime Reduction. The evidence and its implications for practice.

Kasarda, J.D., & Janowitz, M. (1974). Community Attachment in Mass Society. *American Sociological Review* 39: 328-339.

Kenya National Bureau of Statistics (2019). Kenya Population and Housing Census: *Population by County and Sub-County, v1. ISBN: 978-9966-102-09-6.*

Kenya Police Service, (2014). *Annual Crime Report.*

Kenya Police Service, (2015). *Annual Crime Report.*

Kenya Police Service, (2016). *Annual Crime Report.*

Kenya Police Service, (2017). *Annual Crime Report.*

Kenya Police Service, (2017). *Service Standing Orders*. Government printer, Nairobi.

Kenya Police Service, (2018). *Annual Crime Report.*

Kingston, B., Huizinga, D., & Elliot, D.S. (2009). A Test of Social Disorganization Theory in High-Risk Urban Neighborhoods. *Youth Society*, V. 41 No. 1 pg. 53-79.

Kinney, J. B., Brantingham, P. L., Wuschke, K., Kirk, M. G., & Brantingham, P. J. (2008). *Crime Attractors. Generators and Detractors:* Land Use and Urban Crime Opportunities.

Kombo, D. K., & Tromp, D. L. (2006). *Proposal and Thesis Writing: An Introduction.* Nairobi: Paulines Publications Africa.

Konijnendijk, C.C., Annerstedt, M., Nielsen, A.B., & Maruthaveeran, S. (2013). Benefits of urban parks: A systematic review. Report FOR-IFPRA, International Federation of Parks and Recreation Administration, Copenhagen and Alnarp.

Kothari, C. R. (1996). *Research methodology*. Methods and techniques New Delhi.

Kraut, D. T. (1999). Hanging Out the No Vacancy Sign: Eliminating the Blight of Vacant Buildings from Urban Areas. *New York University Law Review*, 74(4), 1139.

Krohn, M. D. (1986). The Web of Conformity: A Network Approach to the Explanation of Delinquent Behavior. *A journal of Social Problems* Vol. 33, No. 6, Special Theory Issue.

Kubrin, C.E., Squires, G.D., Graves, S.M., & Ousey G. (2011). Does Fringe Banking Exacerbate Neighborhood Crime Rates? Investigating the Social Ecology of Payday Lending. *Criminology & and public policy.* 10(2):437-466

Kuo, F.E., & Sullivan, W.C. (2001). *Environment and crime in the inner city–does vegetation reduce crime? Environment and Behavior*. 2001; 33(3):343–367.

Kuo, F. E., Bacaicoa, M., & Sullivan, W. C. (1998). Transforming inner city landscapes: Trees, sense of safety, and preference. *Environment and Behavior*, 30, 28-59.

La Vigne, N., Lowry, S., Markman, J., & Dwyer, A. (2011). Evaluating the Use of Public Surveillance Cameras for Crime Control and Prevention. US Department of Justice, Office of Community Oriented Policing Services. Washington, DC: Urban Institute, Justice Policy Center.

Lancaster, L. (2013). *Where do murders occur in South Africa?* Retrieved from https://issafrica.org/iss- 29/10/2018.

Langley, J., Chalmers, D., & Fanslow, J. (1996). Incidence of death and hospitalization from assault occurring in and around licensed premises: A comparative analysis. Addiction, 91(7), 985-93.

Loader, I. (1997). Thinking normatively about private security. *Journal of Law and Society*, 24(3), 377-394.

Lockwood, D. (2007). Mapping crime in Savannah: Social disadvantage, land use, and violent crimes reported to the police. *Social Science Computer Review* 25 (2): 194 – 209.

Loukaitou-Sideris, A. (2000). Revisiting inner-city strips: A framework for community and economic development. *Economic Development Quarterly* 14:165-81.

Lutzenhiser, M. & Netusil, N. R. (2001). The effect of open spaces on a home's sale price. *Contemporary Economic Policy* 19: 291 – 298.

Madensen, T. D. (2007). *Bar Management and Crime*: Toward a dynamic theory of place management and crime hotspots. PhD diss., School of Criminal Justice, University of Cincinnati, OH.

Madensen, T. D., & Eck, J. E. (2013). Crime places and place management. In *Oxford handbook of criminological theory*, eds. Francis T. Cullen and Pamela Wilcox, 554–78. New York, NY: Oxford University Press.

Markowitz, F.W., Bellair, P.E., Liska, A.E., & Liu, J. (2001). Extending social disorganization theory: modeling the relationships between cohesion, disorder, and fear, *Criminology*, 39:2, 2001, 293-320.

Maxwell, J. (1996). *Social Dimension of Economic Growth.*

Mazerolle, L., Wickes, R., & McBroom, J. (2010). Community Variations in Violence: The Role of Social Ties and Collective Efficacy in Comparative Context. *Journal of Research in Crime and Delinquency* 47(1) 3 –30.

Mbuba, J. M. (2017). Policing in East Africa. *A focus on the National Police Service in Kenya.* Law Africa Publishing (K).

Mburu, L.W., & Helbich, M. (2016). Environmental Risk Factors influencing Bicycle Theft: A Spatial Analysis in London, UK. *PLoS ONE 11*(9):e0163354. doi:10.1371/journal.pone.016335.

McCarthy, B., & Chaudhary A.R. (2014). Rational Choice Theory and Crime *Encyclopedia of Crime and Criminal Justice.* Springer.

McCarthy, B., & Hagan, J. (2005). Danger and the Decision to Offend. Social Forces 83 (3):1065-1096.

McCord, E.S., & Houser, K. (2017). Neighborhood Parks, Evidence of Guardianship, and Crime in Two Diverse US Cities. *Security Journal*. 30, 807–824.

McLean, S., Worden, R., & Kim, M. (2013). Here's Looking at You: An Evaluation of Public CCTV Cameras and Their Effects on Crime and Disorder. *Criminal Justice Review* 38: 303–334.

Meehan, B., & Benson, B. L. (2017). Does private security affect crime? A test using state regulations as instruments. *Journal of applied economics* Vol. 49, pg. 4911-4924.

Moore, M.L. (2017). The relationship between crime and vacant buildings in the city of Chicago.

Mugenda, M. O., & Mugenda, A.G. (2003). *Research Methods Quantitative and Qualitative Approaches.* Nairobi: Acts Press.

Mwaniki, M.J. (2016). The role of community policing in crime prevention: Kirinyaga County, Central Kenya. Https://erepository.mku.ac.ke.

Nairobi Crime Survey Report (2001), Nairobi Central Business District Association.

Nasar, J. L., & Fisher, B. S. (1993). Hot spots of fear and crime: A multi-method investigation. *Journal of Environmental Psychology,* 13, 187-206.

Neeleman, D. (1973). *Tilbug Studies in Economic*: Multicollinearity in linear economic models. Springer Netherlands.

Orodho, A. J. (2003). *Essentials of Educational and Social Science Research Method.* Nairobi:Masola Publishers.

Osgood, W. D., & Chambers, J.M. (2000). Social Disorganization outside the Metropolis: An Analysis of Rural Youth Violence. *Criminology* 38:81-115. Ownership Levels on Theft Targets: The Example of Domestic Burglary." *British Journal of Criminology* 45:741-64.

Painter, K. A. (1994). The impact of street lighting on crime, fear, and pedestrian street use. *Security Journal*, 5, 116-124.

Perkins, D., Wandersman, A., Rich, R., & Taylor, R. B. (1993). The physical environment of street crime: Defensible space, territoriality and incivilities. *Journal of Environmental Psychology* 13: 29 – 49.

Perry, E.C., & Munien, S. (2016). Safety and security concerns in relation to open leisure spaces in residential areas in Durban. *African Journal of Hospitality, Tourism and Leisure*, 5(3), 1-12.

Pizza, E. L., Welsh, B. C., Farrington, D. P., & Thomas, A. L. (2018). *CCTV and crime prevention*.

Poyser, B. (2017). Police practitioners and place managers' understandings and perceptions of heritage crime in Nottinghamshire. *International Journal of Police Science & Management*, Vol. 19(4) 247–260.

Pyke, G. H. (1984). *Optimal foraging theory:* A critical review. Annual Review of Ecological Systems, 15, 523–575.

Ramsay, M., & Newton, R. (1991). The Effect of Better Street Lighting on Crime and Fear: A Review. (Crime Prevention Unit Paper 29.) London: Home Office.

Rankin, B. H., & Quane, J. M. (2002). Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Social Problems*, 49, 79-100.

Rawe, J. (2007). Bye-bye, Mall Rats. *Time*.

Reeves, N. (2000). The condition of public urban parks and green space in Britain. *Journal of CIWEM 14*: 157 – 163.

Rengert, G., & Wasilchick, J. (1985). *Suburban Burglary: A Time and a Place for Everything*, Springfield, IL: Thomas.

Robert, J., Fischer R., & Green, G. (2003). *Introduction to security*. Butterworth Heinemann.

Roberts, B. J. (2018). State of affliction: fear of crime and quality of life in South Africa, in Dave Webb and Eduardo Wills-Herrera (eds).

Robinson, D. (2004). *Communities and cohesion: what's housing got to do with it?* The housing studies association Spring conference, Sheffield Hallam University, 15th and 16th April 2004 Centre for Local Economic Strategies.

Roman, C. G. (2005). Routine Activities of Youth and Neighborhood Violence: Spatial Modeling of Place Time and Crime. *In Geographic Information Systems and Crime Analysis*; Wang, F., Ed.; Idea Group Publishing: London, UK.

Roman, C. G., Kane, M., Baer, D., & Turner, E. (2009). Community Organizations and Crime: An Examination of the Social-Institutional Processes of Neighborhoods.

Roncek, D. W., & Maier, P.A. (1991). Bars, blocks, and crime revisited: *Linking the theory of routine activities to the empiricism of 'hot spots'*. Criminology 29(4): 725–753.

Ross N., & Pease K. (2007). Community Policing and Prediction, In Williamson T. (Ed.), *Knowledge-Based Policing*, Chichester: Wiley.

Rossmo, K. (1994). Strategic Crime Patterning: Problem-Oriented Policing and Displacement. In: Block, C.R. and Dabdoub, M. (eds.), *Workshop on Crime Analysis through Computer Mapping: Proceedings, 1993.* Chicago, IL: Illinois Criminal Justice Information Authority.

Sambaiga, R. F. (2018). Changing images of Nyumba Kumi in Tanzania: Implications for youth engagement in countering violence at community level. *The African Review* Vol. 45, Supp. Issue, No. 1.

Sampson, R. J., & Groves, W. B. (1989). Community Structure and Crime: Testing Social Disorganization Theory. *American Journal of Sociology* vol 94 no 4.

Sampson, R. J., Raudenbush, W., & Earls, F. (1997). Neighborhoods and violent crime: amultilevel study of collective efficacy, *Science,* 277(5328), pp. 918–924.

Saunders, M. (2003). *Research Methods for Business Students*. 3rd ed.

Schmalleger, F. (2012). Criminology Today. *An integrative introduction 6th ed.* Prentice hall, USA.

Schroeder, H. W., & Anderson, L. M. (1984). Perception of personal safety in urban recreation sites. *Journal of Leisure Research* 16, 178-194.

Scott J. (2000). Rational choice theory. In: Browning G, Halcli A, and Webster F (eds) *Understanding Contemporary Society: Theories of the Present.* London: Sage.

Security Research and Information Centre, (2014). *Report on an overview crime occurrences in Nairobi.*

Security Research and Information Centre, (2014). *Study of crime in urban slums in Kenya*. The case of Kibra, Bondeni, Manyatta and Mishomoroni slums.

Separovic, C., & Brooks, D. J. (2014). Efficacy of property marking: Police identification of stolen property.

Shaffer, G. S., & Anderson, L. M. (1985). Perceptions of the security and attractiveness of urban parking lots. *Journal of Environmental Psychology*, 5, 311-323.

Shanahan, D.F., Lin, B.B., Gaston, K., Bush, R., & Fuller, R.A. (2015). What is the role of trees and remnant vegetation in attracting people to urban parks? *Landscape Ecology, 30*. 153-165.

Shane, J.M. (2012). The problem of abandoned buildings and lots. *Problem-Specific Guides Series for Police No. 64.* https://www.researchgate.net/publication/308686264.

Shaw, C. R., & McKay, H. D. (1969). Juvenile Delinquency and Urban Areas, rev. ed. Chicago: University of Chicago Press.

Shehayeb, D. (2010). *Planning and Designing Urban Space, Community and Crime Prevention: The Case of Arab Countries*, Policy Brief Series, no. 16, November, Global Consortium on Security Transformation.

Sherman, L. W. (1995). Hot Spots of Crime and Criminal Careers of Places. In J. E. Eck and D. Weisburd (Eds.), *Crime and Place* (Vol. 4, pp. 35-52). Monsey, NY: Criminal Justice Press.

Sherman, L. W., Schmidt, J. D., Rogan, D. P., Gartin, P. R., Cohn, E. G, Collins, D. J., & Bacich, A. R. (1992). The variable effects of arrest on criminal careers: The Milwaukee Domestic Violence Experiment. *Journal of Criminal Law and Criminology, 83*(1), 137-169.

Shoemaker, D. (2000). *Theories of Delinquency:* An examination of explanations of delinquent behavior (4th ed.). NY: Oxford University Press.

Simons, R. L., Simons, L. G., Burt, C. H., Brody. G., H., & Cutrona, C. (2005) Collective Efficacy, authoritative parenting and delinquency: A longitudinal test of a model integrating community and family level processes. *Criminology* 43(4), 989-1029. https://doi.org.10.1111/j.1745-9125.2005.00031.x.

Skogan, W. (1986). Fear of Crime and Neighborhood Change. Pp. 203-29 *in Communities and Crime*, edited by A. J. Reiss, Jr., and M. Tonry. Chicago: University of Chicago Press.

Small, M. L., Jacobs E. M., & Massengill, R. P. (2008). Why Organizational Ties Matter for Neighborhood Effects: Resource Access through Childcare Centers. *Social Forces* 87(1):387–414.

Smith, M., & Cornish, B. (2006): Secure and Tranquil Travel: *Preventing Crime and Disorder on Public Transport. London:* UCL Jill Dando Institute of Crime Science.

Snelgrove, A. G., Michael, J. H., Waliczek, T. M., & Zajicek, J. M. (2004). Urban greening and criminal behavior: A geographic information system perspective. *Hort Technology, 14*(1), 48–51.

Sohn, D.W. (2016). Do all commercial land uses deteriorate neighborhood safety? Examining the relationship between commercial land-use mix and residential burglary. *Habitual international* Vol. 5 pg. 148 – 158.

South Africa (2017). *Crime and safety report*. Retrieved from http://southafrica. usembassy.gov/.

Spelman, W. (1993). Abandoned Buildings: Magnets for Crime? *Journal of Criminal Justice Vol.* 2 I, pp. 48 I-495.

St. Jean, P. (2007). *Pockets of crime: Broken windows, collective efficacy, and the criminal point of view*. Chicago: University of Chicago Press.

Sun, I. Y., Triplett, R., & Gainey, R. R. (2004). Neighborhood Characteristics and Crime: A Test of Sampson and Groves' Model of Social Disorganization. Western Criminology Review 5(1), 1-16 (2004).

Sypion-Dutkowska, N., & Leitner, M. (2017). Land Use Influencing the Spatial Distribution of Urban Crime: A Case Study of Szczecin, Poland. *International Journal of Geo-information.* ISPRS Int. J. Geo-Inf.2017, 6, 74; doi: 10.3390/ijgi6030074.

Tabassum, S. (2018). Role of Community Policing in Crime Prevention against Children, Women and Senior Citizens. *Indian police journal.*

Taylor, R. B., & Harrell, A. V (1996). *Physical Environment and Crime*. U.S. Department of Justice Office of Justice Programs.

Tien, J. M., O'Donnell, V. F., Barnett, A., & Mirchandani, P. B. (1979). *Street Lighting Projects: National Evaluation Program, Phase 1 Report.* Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, U.S. Department of Justice.

Tierney, J., & Hobbs, D. (2003). *Alcohol-Related Crime and Disorder Data:* Guidance for Local Partnerships. London.

Tilley, N., Smith, J., Finer, S., Erol, R., Charles, C., & Dobby, J. (2004). *Problem Solving Street Crime: Practical Lessons from the Street Crime Initiative*. Great Britain Home Office Research Development and Statistics Directorate Information and Publications Group, London.

Tran, V. C. G., Alison, J., Small, M., & Winship, C. (2013). Participation in Context: Neighborhood Diversity and Organizational Involvement in Boston. *City & Community* 12(3):187–210.

Trojanowicz, C., & Bucqueroux, B. (1990). Community policing: A contemporary perspective. Cincinnati, OH: Anderson.

Troy, A. R., Grove, J. M., O'Neil-Dunne, J. P. M., Pickett, S. T. A., & Cadenasso, M. L. (2007). Predicting opportunities for greening and patterns of vegetation on private urban lands. *Environmental Management, 40*(3), 394–412.

Uchida, C.D., Swatt, M.L., Solomon, S.E., & Varano, S. (2014). *Neighborhoods and Crime:* Collective Efficacy and Social Cohesion.

Vidal, J.B., & Mastrobuoni G. (2018). *Police Patrols and Crime.* IZA Institute of Labour Economics.

Villarreal, A. (2006). *Social Cohesion, Criminal Victimization and Perceived Risk of* Crime in Brazilian Neighborhoods.

Voicu, I., & Been, V. (2008). The effect of community gardens on neighboring property values. *Real Estate Economics 36* (2): 241 – 283.

Wabala, D., Muyanga, P., Kariuki, J., Mureithi, F., & Mwangi, M. (2010, June 16). Crime hot spots mushroom throughout the country. *Kenyan Daily nation.* https://www.nation.co.ke/news/Crime-hot-spots-mushroom-throughout-the-country/1056-940632-lec8d5z/index.html.- 1/11/2018.

Walton, J. (1987). Theory and Research on Industrialization. *Annual Review of Sociology*, 1987, Vol. 13 (1987), pp. 89-108.

Wambui, M. (2018, January 24). Thika Town residents decry rise in muggings, daylight thefts. *Kenyan Daily Nation*. Retrieved from https://www. nation.co.ke/ counties/kiambu/Muggings-rise-Thika-Town/1183274-4276960-t3e538/index. html- 29/10/2018.

Wanjohi, D.M. (2014). Influence of community policing on crime reduction in Kenya: A case of Machakos County.

Warner, B. D. (2007). Directly intervene or call the authorities? A study of forms of neighborhood social control within a social disorganization framework. *Criminology*, 45, 99-129.

Warren, D. I. (1969). *Neighborhood Structure and Riot Behavior in Detroit: Some Exploratory Findings*. Social Problems.

Weisburd, D. (2018). Hot Spots of Crime and Place-Based Prevention. *Criminology & Public Policy*, vol 17.

Weisburd, D., & Green, L. (1994). *"Defining the Street Level Drug Market."* In: Doris Layton MacKenzie and Craig Uchida (eds.), Drugs and Crime: Evaluating Public Policy Initiatives. Newbury Park, CA: Sage.

Weisburd, D., Eck, J E., Braga, A., Telep, C., Cave, B., Bowers, K., Bruinsma, G., Gill, C., Groff, E., & Hinkle, J. (2016). *Place matters: Criminology for the 21st century*. New York, NY: Cambridge University Press.

Wellsmith, M., & Burrell, A. (2005). The Influence of Purchase Price and Ownership Levels on Theft Targets: The Example of Domestic Burglary. *The British Journal of Criminology, Vol. 45*, Issue 5, pp. 741-764.

Welsh, B.C., & Farrington, D.P. (2009b). *Making Public Places Safer: Surveillance and Crime Prevention*. New York: Oxford University Press.

Wilcox, P., &. Eck, J.E. (2011). Criminology of the unpopular: Implications for policy aimed at payday lending facilities. *Criminology & Public Policy* 10 (2): 473–82.

Wilcox, P., Madensen, T. D., & Tillyer M. S (2007). Guardianship in context: Implications for burglary victimization, risk and prevention. *Criminology*. 45(4), 771 -803.

Wilcox, P., Queensberry, N., Cabrera, D. T. & Jones, S. (2004). Busy places and broken windows? Toward defining the role of physical structure and process in community crime models. *The Sociological Quarterly* 45 (2): 185 – 207.

Williams, F. P., & McShane, M. D. (2004). Criminological theory. Upper Saddle River: Pearson Education.

Wright, R., & Decker, S. H. (1997). *Armed Robbers in Action: Stickups and Street Culture.* Northeastern University Press, Lebanon, NH.

Wright, R., Heilweil, M., Pelletier, P. and Dickinson, K. (1974). T*he Impact of Street Lighting on Crime.* Ann Arbor, Michigan: University of Michigan.

Yount, R. (2006). *Population and sampling: Research Design and Statistical Analysis for Christian Ministry*. 4th Ed.

Zhang, X., Hatcher, B., Clarkson, L., Holt, J., Bagchi, S., Kanny, D., & Brewer, R. D. (2015). Changes in Density of On-Premises Alcohol Outlets and Impact on Violent Crime, Atlanta, Georgia, 1997–2007. *Preventing Chronic Disease*, 12. https://doi.org/10.5888/pcd12.140317.

APPENDICES

Appendix A: Introductory Letter

Dear respondent,

My name is Kenneth Seth Omonya, a postgraduate student at Chuka University pursuing Master of Arts in Criminology and Security Studies and carrying out a field research. The focus of this study is on: **Neighbourhood Characteristics and their Influence on Crime Commission: A Case Study of Kiambu County, Kenya.** You have been identified as a respondent and the information will be used purely for academic purposes and your name will not be mentioned in the report. Findings of the study, shall be upon request, be availed to you.

Thank you

Kenneth Seth Omonya

Researcher.

Appendix B: Questionnaire for the Respondents

The items in this research are for educational research purpose. Kindly fill in the blanks to provide the information requested for in the space provided. You are not required to fill in your names. The information you give will be kept confidential and will not be made available.

A. Background Information

This section requires you to give personal information. You are not required to give your name.

1. Kindly indicate your;
   i) Gender

      Male [ ] Female [ ]

   ii) ii) Age in years

      18-24 [ ] 25-30 [ ] 31-35 [ ] 36-40 [ ] 41 and above [ ]

   iii) Level of education

      Never went to School [ ] Primary level [ ] Secondary level [ ]

      Tertiary level [ ]
2. How long have you lived in this neighborhood?

   1 year and less [ ] 2 – 4 years [ ] 5– 7 years [ ]

   8-10 years [ ] 11 years and above [ ]

SECTION B.

This section contains various statements about your opinion on the influence of the neighborhood characteristics on crime commission. The neighborhood characteristics are in terms of Physical facilities and guardianship measures. You are requested to give honest opinion.

Indicate your opinion by ticking whether you strongly agree, Neutral, disagree and strongly disagree by using the key below.

KEY: SA- Strongly Agree 1 **B**= Agree 2 **N**= Neutral 3 **D**= Disagree 4

SD=Strongly Disagree 5

NO	Statement	1	2	3	4	5
A	**Place facilities**					

1	Existence of unregulated number of bars at a place attracts crime.					
2	Existence of abandoned buildings in a town attracts crime.					
3	Areas surrounding public parks experience high number of crime rates.					
4	High number of people who are aware of the facility at a place attracts crime					
5	Places whose facility brings together large number of people attracts crime					
6.	Facilities that involves a lot of cash transactions attracts crime					
7	Business that operates until late night attracts crime.					
8.	Areas neighboring forests are at high risk of experiencing crime					
9.	Bushy neighborhoods are at high risk of experiencing crime					
B	**Place guardianship**					
1.	Absence of police patrol in an area attracts crime.					
2	Presence of closed-circuit television cameras in a building discourages crime					
3	Absence of security lights at a place attracts crime					
4	Lack of security checks at major entry points at a place attracts crime.					
5	Presence of police patrol at place discourages potential offenders					
6.	Presence of security guards at a building scare away crime.					
7.	Presence of locked buildings discourages crime.					

SECTION C

This section involves questions related to your relationship with neighbours and your perception of safety within this street/neighborhood.

1. What is the likelihood that your neighbors could be counted on to intervene in the following ways if;

(i) Children were skipping school and hanging out on a street corner,

Very likely [ ] Likely [ ] Not Sure [ ]

Unlikely [ ] Very unlikely [ ]

(ii) Children were spray-painting graffiti on a local building,

Very likely [ ] Likely [ ] Not Sure [ ]

Unlikely [ ] Very unlikely [ ]

(iii) Children were showing disrespect to an adult

Very likely [ ] Likely [ ] Not Sure [ ]

Unlikely [ ] Very unlikely [ ]

2. Indicate the frequency of your participation in the following activities in your neighborhood, circle of acquaintances or families

V.O=Very Often 2. **O**= Often 3. **N.S** = Not Sure 4. **S**= Sometimes 5. **N**=Never

Statement	V.O	O	N.S	S	N
Caring for sick or older people					
Looking after children					
Participating in cultural activities					
Voluntary associations					

Thank you for your participation.

Appendix C: Chuka University Ethics Review Letter

CHUKA UNIVERSITY

Knowledge is Wealth *(Sapientia divitia est)* Akili ni Mali

CHUKA UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE

Telephones: 020-2310512/18
Direct Line: 0772894438
Email: info@chuka.ac.ke,
P. O. Box 109-60400, Chuka
Website: www.chuka.ac.ke

REF: CUIERC/ NACOSTI/003 **30TH MAY 2019**

TO: KENNETH SETH OMONYA

Dear Sir/madam

RE: NEIGHBOURHOOD CHARACTERISTICS AND THEIR INFLUENCE ON CRIME COMMISSION: A CASE STUDY OF KIAMBU COUNTY, KENYA.

This is to inform you that ***Chuka University IERC*** has reviewed and approved your above research proposal. Your application approval number is ***NACOSTI/NBC/AC-0812*** .The approval period is ***1st April, 2019 – 31st March, 2020.***

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***Chuka University IERC***.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***Chuka University IERC*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***Chuka University IERC*** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to ***Chuka University IERC***.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely

PROF. ADIEL MAGANA
CHAIRMAN CHUKA UNIVERSITY IERC

INSTITUTIONAL ETHICS REVIEW COMMITTEE
30 MAY 2019
P. O. Box 109-60400 CHUKA
CHUKA UNIVERSITY

Appendix D: NACOSTI Authorization

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/19/24262/31281**

Date: **27th June, 2019.**

Kenneth Seth Omonya
Chuka University
P.O. Box 109-60400
CHUKA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Neighborhood characteristics and their influence on crime commission. A case study of Kiambu County."*** I am pleased to inform you that you have been authorized to undertake research in **Kiambu County** for the period ending **24th June, 2020.**

You are advised to report to **the County Commissioner, and the County Director of Education, Kiambu County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

DR. ROY B. MUGIIRA, PhD.
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kiambu County.

The County Director of Education
Kiambu County.

Appendix E: NACOSTI Research Permit

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

1. The License is valid for the proposed research, location and specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The License does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.

National Commission for Science, Technology and innovation
P.O. Box 30623 - 00100, Nairobi, Kenya
TEL: 020 400 7000, 0713 788787, 0735 404245
Email: dg@nacosti.go.ke, registry@nacosti.go.ke
Website: www.nacosti.go.ke

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

RESEARCH LICENSE

Serial No.A 25575

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MR. KENNETH SETH OMONYA
of CHUKA UNIVERSITY, 507-60400 CHUKA,has been permitted to conduct research in *Kiambu County*

on the topic: *NEIGHBORHOOD CHARACTERISTICS AND THEIR INFLUENCE ON CRIME COMMISSION. A CASE STUDY OF KIAMBU COUNTY*

for the period ending:
24th June,2020

Permit No : NACOSTI/P/19/24262/31281
Date Of Issue : 27th June,2019
Fee Recieved :Ksh 1000

Applicant's Signature

Director General
National Commission for Science, Technology & Innovation