

OSUN GEOGRAPHICAL REVIEW

Journal of the Department of Geography, Osun State University, Osun State, Nigeria

Volume 6, 2024

ISSN: 2695 - 1959

Editor-in-Chief Prof. Olusegun Ekanade

Published by the Department of Geography, Osun State University, Osun State, Nigeria

EDITORIAL BOARD

Chairman:	Prof. R.A. Asiyanbola		
Editor-in-Chief:	Prof. Olusegun Ekanade		
Members:	Dr. Samuel Yakubu Dr. K.J. Samuel S.A. Adeniyi Dr. O.S. Durowoju		
Business Manager:	Dr. M.O. Obidiya		
Editorial Advisers:	Prof. A.S. Gbadegesin Prof. C.O. Olatubara Prof. F.A. Adesina Prof. A.S. Aguda Prof. M.O. Olawole Prof. T.E. Ologunorisa Prof. F.I. Afolabi Prof. W.O. Adebayo Prof. O.O. Oyesiku Prof. B.A. Badejo Prof. B.A. Badejo Prof. E.F. Ogunbodede Prof. L. T.Ajibade Prof. A. Olusanya Prof. O.C. Nwoke	-	University of Ibadan University of Ibadan Obafemi Awolowo University Obafemi Awolowo University Obafemi Awolowo University Federal University of Technology, Akure Ekiti State University Ekiti State University Olabisi Onabanjo University Olabisi Onabanjo University University of Nigeria Adekunle Ajasin University University of Ilorin Osun State University

CONTENTS

Editorial Board	ii
Contents	iii
Preference for Green Space on Urban Residential Plot in Ibadan, Nigeria S. A. Adejumo	1
Assessment of Indigenous Knowledge on Housing Constructions in Akure South, Nigeria S. O. Fashuyi, B. O. Owolabi, A. A. Fakere. and Y. A. Ishola	11
Air Quality Condition of Artisanal Gold Mining Sites During the Dry Season in Niger State, Nigeria A. A. Idris, J. S. Ndace, S. D. Abubakar and I. Yusuf	17
Examining Residents' Perceptions of Economic Losses Due to Flooding in Niger State Y. M. Kodan, H. M. Liman, S. N. Jiya and C. O. Okwuwa	22
Assessment of Socio-economic Impacts of Cottage Industries in Niger South, Niger State, Nigeria N. Ndako, S. A. Mashi, J. Y. Magaji	31
Effects of Cottage Industries on Ambient Air Pollution In Niger South, Niger State, Nigeria N. Ndako, S. A. Mashi and J. Y. Magaji	38
Assessment of Mining-induced Land Degradation in Ile-Ife, Osun State, Nigeria B. O. Balogun, A. G. Ojo, O. E. Aluko, and L. I. Alage	48
Assessing the Effectiveness of Traditional Practices in Green Leafy Farming in Peri-urban Areas of Ibadan, Nigeria <i>S. Ojolowo and J. Talabi</i>	59
Spatial Temporal Analysis of Road Network Density in Ile-Ife Metropolis, Nigeria <i>F. T. Oladapo and M. O. Olawole</i>	79
Characterization of the Impact of Urban Development on Deforestation and Forest Degradation in Akure Environ, Ondo State Nigeria <i>O. O. Fabiyi and O. Fajilade</i>	84
Rainfall Variability and its Effect on the Yield of Sorghum and Farmers' Adoption of Climate Smart Agricultural Practices in Bauchi State, Nigeria <i>E. Ikpe, P. A. John, U. D. Omede, E. M. Onah and Y. J. Alhassan</i>	95

Tourism and Regional Development: A Geographical Perspective E. E. Adeniyi and A. M. Tunde	105
Living within Gated Communities: Analysis of Determinants and Residents' Perceptions of Safety In Ibadan Metropolis <i>S. A. Adeniyi, M. O. Obidiya and K. I. Adewuni</i>	114
Insecurity in Public Transport: A Growing World Concern V. Afolabi and R. A. Asiyanbola	123
Note to Contributors	133



INSECURITY IN PUBLIC TRANSPORT: A GROWING WORLD CONCERN

V. Afolabi and R. A. Asiyanbola

Department of Geography, Faculty of Social Sciences, College of Management and Social Sciences, Osun State University, Osogbo, Nigeria *Corresponding author's email: afolabi.victor@yahoo.com*

Abstract

Transport security and safety has attracted global attention in recent times. Safety occupies a central theme in public transport. It affects consideration for the travel pattern and level of patronage in public transport. Globally, crime has become a social problem across towns and cities particularly along major bus-stops, transport routes, and other public places along public transit. Categories of crimes in public transport that have been identified in the literature include: kidnapping, harassments, murder, assaults, rape, pick pocketing, armed robbery, assault and battery. There has been uncontrolled increase in incidence of crime and insecurity in public transit worldwide, particularly in developing countries, including Nigeria. In most cities, the risk to lives and properties are becoming regular features on transport routes and terminals. In many countries in both developed and developing areas of the world, many travelers have been victims of transit crime. Available studies in recent times have shown that uncontrolled increasing in frequency, dimension and advancement in crime is a growing challenge across the world. The paper is an overview of insecurity in public transport with a view to find out what information already exist on crime and insecurity in public transport, discusses conceptual and theoretical issues, identify methodological and research technique approaches, and conclusions.

Keywords: Insecurity, Crime, Public Transport, Transit, World.

Overview of Crime and Insecurity in Public Transport

Crime and Insecurity in public transport

Public transport security is arguably one of the most important factors that influence a lot of decisions about travel behaviour. This is because in many countries in both developed and developing areas of the world, many travelers have been victims of transit crime (Block and Block, 2000; Gwillian, 2003; Alemika and Chukwuma, 2005; Ajayi and Ajayi, 2014; Odufuwa, 2011; 2012; Breetzke and Cohn 2012; Asiyanbola and Ayeolowo, 2019; Ceccato and Loukaitou-Sideris.2020). Numerous studies have been conducted in understanding factors influencing travel pattern and safety in public transit. Dragu et al (2013) argued that crime and fear of crime influence the quality of public transport. Delbosc and Currie (2011) and Crime Concern (2004) posit that the level of security in public transit influence the patronage levels when traveling and waiting at transits stop bus stations. Ekblom (2011), Weisburd et al (2012) and Armitage & Joyce (2017) argued that surveillance in relation to ability to observe what is happening through the use of closed circuit television (CCTV) and security guards influence crime and the perceptions of safety. Clifton (2009) and Odufuwa (2011) revealed that socio-economic deprivations contribute to the criminal activities on public transport system in developing countries. The studies further revealed that the more secure the public transport system, the more spatial interactions or patronage experienced. Among public places, transit environments (bus stops, train stations and the way/ to from them) constitute fertile settings for crime (Abenoza et al 2018; Ceccato and Paz, 2017).

Natarajan, (2016) investigated sexual harassment

against female students in transit environment. He argued that in order to better succeed at preventing sexual violence in transit environments, the evidence is needed about its prevalence by type and the situational conditions under which it occurs. According to him, sexual violence against female students is a day-to-day reality (Natarajan, 2016), especially in environments where the activity spaces of victims and perpetrators converge (Brantingham & Brantingham, 1995; Felson & Eckert, 2017) such as stations and bus stops (Ceccato, 2014). Therefore, sexual violence is expected to occur where such a behavior is imbedded in the place's morality (Wikstr€om & Treiber, 2017), often in socially disorganized ecological contexts, characterized by poor social control (Shaw & McKay, 1942; Wilson & Kelling, 1982) interacting with particular situational conditions familiar to young people (Ceccato, 2014; Ceccato et al., 2018; Maimon & Browning, 2012). Train stations and bus stops are places where people converge at particular times of the day. This rhythmic pattern of movement and convergence in transportation nodes is crucial for crime to occur.

Cozens (2014) found out that there is an interplay of the prevailing land-use and its effects on crime in public transit. The study identified that there are some prevailing land-use that increase vulnerability to crime in mass transit in relation to hotels, retail shops, seedy inns, vacant lots/buildings, and cash converters/pawn shops. In the same vein, Newton (2008) associated the incidence of crime and busstops. According to Felson and Boba (2010) different interplay of the prevailing land-use increase incidence of crime in public transit. Loukaitou-Sideris et al. (2001) revealed that there is a relationship between incidence of crime along transit stops and crime at transit stops is generally higher when the crime rate in the areas in which the stops are situated is high. It has been observed that public routes in relation to footpaths, parking facilities, and unsupervised transit areas; recreational settings in relation to bars and parks; public transport such as bus-stops, transport corridors and other adjoining locations; retail stores, health care centres and clusters of industries among others are potential location of crime generators, crime attractors (Brantingham and Brantingham, 2008), crime detractors (Kinney et al., 2008), crime facilitators (Clarke and Eck, 2005), and crime precipitators (Wortley, 2008). Meanwhile Asiyanbola and Ayeolowo (2019) investigated the state and severity

of crime, crime prevention and control measures among residents of Olodi in Apapa Local Government Area in Lagos State. The findings revealed that theft and stealing were the most prevailing crime, especially among male adult persons. The study further showed that crime is more prevalent during dry season, Christmas and poses significant threats to life, property and insecurity. More so that uncontrolled population growth due to inadequate effective population control and unemployment serve as the contributory factor responsible for the increasing spate of crime and insecurity. The study provided better understanding on the influence of major land-use on crime prevalence. Ajayi and Ajayi (2014) also examined the trend analysis of crime incidences and crime vulnerability differentials on urban transport facilities in Ibadan, Nigeria. The study found out that females were more vulnerable to victims and time of the travel influenced the level of security of the passengers.

According to Otu (2017), the uncontrolled activities of touts known as "Agberos" at the major bus-stops in Nigerian transport system has brought about physical assaults and harassment of customers in their bid to compete for passengers. Ceccato & Paz (2017) found out that the interplay of high densities of passengers in relation to overcrowding in public transit creates fertile ground for sexual harassment and other forms of abuse.

Categories and risks of crimes in public transport

Categories of crimes in public transport that have been identified in the literature include: kidnapping, harassments, murder, assaults, rape, pick pocketing, armed robbery, assault and battery. In cities across developing societies, the risk to lives and properties are becoming regular features on transport routes and terminals. Routine trips using public transit infrastructure can result in being mugged, robbed, or kidnapped (Ajayi and Ajayi, 2014). Harassments, murder, assaults, injuries, as well as loss of lives and properties, among other risks, are also identified by Odufuwa (2012) as being the persistently experienced transit crimes. Uittenbogaard (2014) examines the incidence of crime in underground stations in Stockholm, Sweden. The study found that there were temporal dimensions to the occurrence of crime by type: theft was most common in the afternoon, vandalism in the evening, and violence at night. Furthermore, frequency of crime occurrence seems to be closely related with routine activities of individuals.

Olojede (2019) assesses transit crimes in Osogbo, Nigeria. 450 questionnaires were administered to 450 respondents. The study found that pick pocketing, armed robbery, and assault and battery were among common transit crimes in Osogbo, and that transit crime vulnerability varied by mode. The major contributory factors responsible for incidence of crime in public transit were poor policing, economic hardship, poor street system and the absence of CCTV. The study provided better understanding to the nature, and pattern of crime in public transit and factors influencing crime in mass transit.

Effects of insecurity in public transport

The effects of insecurity in public transport as stated by Gwillian (2003) revealed that most cities in the developing countries have high incidence of transport related injuries, this can be classified into safety problem (accidents) and the security problem (criminal behavior). As a result of these problems, close to 1 million people are killed per year in road accidents, of which about 85% are in the developing and transitional economies and half in urban areas. The study further revealed that, in addition, between 25 and 35 million people are injured in road accidents world-wide, of which up to 75% are in urban areas. However, the quantification of the security problem is less well quantified or recognized which is more prevalence with pedestrians and cyclists, as well as people in cars and public transport vehicles (Gwillian, 2003). More often the acts of personal violence or harassment especially sexual harassment in public transport vehicles do not get recorded. The prevalence of such is demonstrated by social surveys in Latin America (Gomez 2000, World Bank, 2002).

Also observed by Wojuade and Badiora (2017), crime in Nigeria has changed from normal crime along transport corridors and routes to the recent incidences of kidnapping and terrorism. The study further revealed that on April 4, 2014, an early morning explosion that frayed through the Nyanya transit park in the outskirts of the Nigerian capital, Abuja, killed at least 71 people and injured 124 as hundreds of commuters travelled to work. The explosion destroyed 16 high-capacity buses and 24 minibuses, many of which were loaded with

passengers. In August 22, 2015, a suicide bomber killed 5 and wounded 41 people in an attack at the crowded entrance to a bus station in Damaturu; capital city of Yobe State in northeast Nigeria. On June 6, 2017, 3 passengers were abducted from Lagos-Benin commercial bus at Benin City by-pass near Oluku station in Benin City. Furthermore, on 7th of August 2017, gunmen abducted 15 passengers in Rivers State when they hijacked a Lagos-bound commercial bus. The incident occurred around Elibrada community bus terminal along the eastwest road in Emohua Local Council Area. These and many more are cases of heinous crime that may affect the quality and perception of public transportation system in Nigeria (Wojuade and Badiora, 2017). In the same vein, Lagos city has experienced incidence of transport crisis, violence, and crime in some public transport routes and busstops (Alemika and Chukwuma, 2005; Fadare and Oduwaye, 2009). Researchers have demonstrated consistently that crime and fear of crime can affect the quality of public transport (Dragu et al, 2013) and levels of public transport patronage (Cozens et al. 2004; Delbosc and Currie 2012). Gender-sensitivity in mass transit safety is a growing concern. In addressing the gender-sensitivity in mass transit, Gekoski et al. (2015) posited that numerous developed countries such as the UK, Japan, and countries of the European Union have put in place robust public transport safety measures for providing security to their citizenry. In contrast, most developing countries has witnessed poor safety measures in mass transit and passengers; women adopted their own strategies, such as changing their dressing code and taking precautionary measures to avoid sexual crime victimization while using public transit. As observed in the literature, if the present diminishing quality of public transport service, poor transport infrastructure, land use planning and design of bus stops continues unabated and uncheck mated; crime incidents will continue to seriously threaten the patronage and sustainability of public transport in most developing countries, particularly Nigeria (Odufuwa, 2011).

A Review of Conceptual Issues

Static and non-static crime

Crime is broadly categorized into static and nonstatic in relation to where and when the crime event actually occurred. The concept of static crime event was provided by Newton (2004) to refer to static crime occurring at an exact place, that can theoretically be pin pointed to a specific location (x, y)co-ordinate). An example of this would be assault at a bus stop or train station. The second possible scenario, however, implies the crime to be moving and this can be described as a non-static crime event. When a crime occurs on a moving mode of transport (bus, tram, or train for example) it is difficult to pin point the exact location where the crime event occurred, as the crime happened on a moving vehicle (Newton, 2004). Newton (2004) further argued that non-static crime events may have more than a single location, and have a start point (the place the crime started) and an end point (when the crime finished). These two locations may be different, even if the crime event only lasted for a short duration (for example over a thirty-second-time frame). An example of this may be an assault that occurs on a moving vehicle. It is acknowledged that in certain circumstances the distinction between static and nonstatic crime events is less clear. It could be contended that the walking environment implies movement and therefore should be viewed as non-static. When a crime event occurs in the walking environment, however, it is likely that the target is stationary at the time of the crime event, or movement is over a very short distance, perhaps a few meter, and this location can be recorded as static (x,y location). The speed of travel here is an important factor, as over the same time period that the pedestrian moves a few feet, a bus or train may move several hundred meters.

Additionally, when a moving vehicle is stationary (perhaps at nights or at a stop), it could be argued that this is static. Whether a crime here is recorded as static or non-static would depend on a number of factors. These include; where the crime happened (did the crime happen only when the vehicle was stationary, or include some movement of the vehicle before and or after the stop); the duration of the crime; the speed of movement; the distance travelled; and whether the event can be recorded at an exact location (x,y co-ordinate) or between two points and times (Newton, 2004a).

Transport nodes

According to Ceccato (2009), transport nodes can be defined as roads and those places along the road where people come together to embark or disembark on transportation in order to reach a new destination.

Transport nodes therefore exist not only off a stop or station but also in the immediate surrounding environment. Transport nodes can be bus stops, rail stations or larger structures where several transportation modes come together, such as a central station (Ceccato, 2009). According to Newton (2004) transport node refers to roads and bus stations along the roads that are vulnerable to public transit. Crime in public transport covers a wide range of offences that could occur in at least three different types of situation, namely: walking to, from or between transport facilities or stops (walking from departure point e.g. home to a taxi rank or back; from a taxi stop to a bus station; from a train station to destination point e.g. workplace or back); waiting at boarding points and facilities (e.g. taxi/bus stops, train/bus stations, modal interchanges etc.) and travelling on board a mode of transport such as a bus, train or taxi (Newton, 2004). The targets of crime also vary and could include crime itself (vandalism and fare evasion), employees (assaults on ticket collectors) and passengers (pick-pocketing, assault) (Smith & Clarke, 2000).

Routine activity theory

Cohen and Felson (1979) developed the Routine Activity (RA) theory to explain why crimes occur. Routine activity suggests that each successful crime has at least one motivated offender and at least one personal or property target and requires the absence of an effective guardian capable of preventing its occurrence (Breetzke and Cohn, 2012). The idea as originally conceptualized, addresses how the movement of motivated offenders throughout a city shapes spatial patterns of crime, when this movement overlaps with places where suitable targets or victims congregate and where there is no person or entity to properly guard the target. Targets of crime can be a person or an object, whose position in space or time puts it more at risk of criminal attacks. Interestingly, capable guardians are normally not police officers but rather anybody or device whose presence or proximity would either prevent or discourage a crime from happening. Although police do fall into the category of guardian, normal citizens or devices more frequently play the role. Therefore, passers-by, visibility, lighting, security camera among others would tend to serve as guardian by being present.

Routine Activity theory states that for a criminal

event to occur there must be a convergence in time and space of three factors. These are (a) the presence of a motivated offender, (b) the absence of a capable guardian, and (c) the presence of a suitable target (person or object). Whether or not these elements converge or coincide is a product of the routine activities (day-to-day movements) of potential targets and offenders. As argued by Le Beau (2002) public transport journeys may encompass part of the routine activities of offenders, suitable targets (staff, passengers and facilities), and capable guardians (for example, police officers, security staff, CCTV cameras, or members of the public). This is particularly true when considering the whole journey approach to public transport, from destination point to end point (door to door). It is possible that the availability or lack of public transport may actually influence a person's routine activities. The use of public transport may also be shaped by obligatory (that an individual must undertake) and discretionary (that a person chooses to undertake) routine activities (Le Beau, 2002).

Routine activity theory can be used to explain why certain environments (such as bus stations) give rise to criminal behavior. A bus station brings together large amounts of people simultaneously. This group of people can be composed in a couple of different ways. First, the group could be composed of all suitable targets. These targets are transported to transit stop where offenders can victimize them (Newton, 2004). The author further argued that secondly, the group of travelers can be composed of both suitable targets and potential offenders. This development is most likely the veracity at peak times for transit use, when the traveler population is at its highest. Although, it is absolutely true that capable guardians are present within these groups identified above, it can be argued however that at least one of potential victim and offender is always present, but a guardian need not be. Capable guardians do exist, nonetheless. However, this group of travelers will disperse eventually. The commuters do not all share the same destination. Due to this fact, the capable guardians amongst the commuters get filtered out. As the group separates the probability that capable guardians would hinder crime shrinks, simply because of their decreased presence (Newton, 2004).

According to Felson and Boba (2010), different types of settings generate large amounts of crime. The riskiest settings according to them include public routes (especially footpaths, parking facilities, and unsupervised transit areas), recreational settings (especially bars and parks), public transport (especially stations and their vicinities), retail stores (especially for shoplifting), educational settings (especially at their edges), offices (especially when entered for theft), human support services (especially hospitals with 24-hour activities), and industrial locations (especially warehouses with "attractive" goods). This relates to the routine activities of the area and the potential location of crime generators, crime attractors (Brantingham and Brantingham 2008), crime detractors (Kinney et al. 2008), crime facilitators (Clarke and Eck 2005), and crime precipitators (Wortley 2008).

As revealed by Brantingham and Brantingham (2008), crime generators are activity nodes that pull masses of people toward them, who don't necessarily have any predetermined motivations to offend, but they act on criminal opportunities if they become evident. Crime attractors are activity nodes with well-known opportunities for crime that can entice motivated offenders. Crime detractors are locations that have few attractions and can push people away. This can then encourage use by potential offenders (Kinney et al., 2008). Crime facilitators according to Clarke and Eck (2005) are things that foster the capability of offenders in circumventing existing crime prevention measures. They can be physical (e.g. firearms), social (e.g. gangs and organized criminal networks), or chemical (e.g. alcohol/drugs). Crime precipitators are things in the immediate environment that actively encourage individuals to commit crimes who would not normally consider offending (Wortley, 2008).

Social disorganization theory

Social disorganization theory focuses on place of crime occurrence and tries to explain why some places experience high levels of crime while others do not. Shaw and McKay (1942) described the characteristics of a socially disorganized place as including: high human activities, high population density, population mobility or transient people (people constantly moving in and out of the place), poverty, and the physical decay/poor maintenance of the buildings in the place. As an area begins to decay, it is thought that crime rates will rise due to the lack of social control. The thrust of social disorganization therefore is that there are ecological factors that are responsible for high rates of crime in different places, and these factors are linked to constantly elevated levels of deteriorating infrastructures.

The theory has been used to explain transport crime in many ways. First, transit stops usually correlate with high human activity (Ajayi and Ajayi, 2014). As well, these areas also correlate with high crime activity (Ajayi and Ajayi, 2014). Literature suggests that the presence of a transit station often affects the relative danger in the immediate area (Block and Block, 2000). This suggests that transit stations and stops serve as behavior settings conducive to criminal activity. Brantingham and Brantingham (1993) describe a behavior setting as a location where desired behavior may be carried out. For example, an empty household may be a behavior setting for a person seeking to commit burglary. A department store may be a behavior setting for a teenager who desires to steal a new outfit. Similarly, the area around transit stops may serve as a behavior setting for individuals looking to commit robbery, due to the routine activities of the transit riders, others in the area, and the environment itself. Simply put, areas with high rates of public transportation usage find more transient people in public places, thereby increasing the opportunity for a crime to occur (Cao and Maume, 1993).

Crime pattern theory

Crime Pattern Theory argues that crime is an event that occurs when an individual with some criminal readiness level encounters a suitable target in a situation sufficient to activate that readiness potential (Brantingham and Brantingham, 1993). This approach to understanding crime contends that crimes are patterned, but these patterns are only discernible when crimes are viewed as etiologically complex, occurring within and as a result of a multifaceted environment (Eck and Weisburd 1995). Crime is best viewed as an action that occurs within a situation at a site on a changeable backcloth. This environmental backcloth includes social, cultural, legal, temporal, spatial, and physical infrastructure characteristics (Brantingham and Brantingham, 1993). When broken down the model described above is complex because the backcloth, site, situation, an individual's criminal readiness and the distribution of targets are all required to be examined coincidentally with each other in order to explain individual crime events. The three principal

components of Crime Pattern Theory are nodes, paths and edges (Brantingham and Brantingham, 1981) and these appear to be particularly transferable to the public transport arena (Felson et al., 1996).

The idea of personal activity nodes closely resembles routine activities, and refers to a number of behaviour settings (slices of time and place where certain activity occurs) that alters with time. These nodes are linked by paths, which represent journeys between different activity nodes. Edges define the boundaries around nodes and paths. Certain crimes may occur at these edges, where people who are not familiar with each other meet (for example, racist attacks and robberies). Public transport journeys may represent such paths, and facilitate the movement of persons between some of the activity nodes. These paths on the public transport system are separated by edges, defining by the outer extents of the system, and regulated by the various inputs and outputs to the system (stops, stations and interchanges).

A final concept that has been previously applied to public transport systems is the idea of crime generators and crime attractors (Brantingham and Brantingham, 1995). The authors suggest that public transport stations may be crime generators, crime attractors or fear generators. Transport stations contain a number of people congregated together and this may produce the opportunity for a crime to occur (a crime generator). At certain times of the day these crowds and the characteristics they exhibit (for example, commuters during rush hour) may produce suitable conditions for a particular type of crime (for example, attract offenders who believe there is opportunity to pick-pocket), and hence stations may act as a crime attractor. Fear of crime can be generated in number of ways, especially if the environment appears unclean, uncared for, not well lit or poorly supervised (the Broken Windows Theory, after Wilson and Kelling, 1982).

This discussion suggests that all these theories could be used to explain crime on public transport. From this a number of potential directions for future research can be identified. One avenue for exploration is to examine whether public transport systems act as crime generators or crime attractors, or both (Brantingham and Brantingham, 1993; 1995). Crime Pattern Theory, which focuses on the public transport arena, talks about nodes, paths, edges, crime generators and crime attractors as key in explaining the complex interaction of settings involving the structures of public transport system. Brantingham and Brantingham (1993) examined static crime events on PTS and found that public transit may be either crime generators, crime attractors or just fear generators. Otu (2017) argued that public transport operations in metropolitan Lagos involve all key elements of Crime Pattern Theory of both the offenders and the victims: suitable targets (for example, staff, passengers, presence of large liquidity and valuable property), motivated offenders (for example, unemployed youths, area boys, loiters, touts 'agberos'), and the absence of capable guardians, for example, police officers, security staff, CCTV cameras. In the same

Table 1: Methodological and research approaches by some authors

Author(s)' Name	Article title	Method of study
Ceccatto, V., Linda, L.F., Per,	Young people's victimization	Minimum of 300 students,
N. (2021)	and safety perceptions along the	comprise 150 male and 150
	trip	female
Ceccato, V., Loukaitou -Sideris,	Transit crime and sexual	1122 Young people were
A. (2020)	violence in cities: international	sampled along bus stops and
	evidence and prevention	stations.
Asiyanbola R.A. and Ayeolowo	Urban Crime and Insecurity: A	Both primary and secondary
S.D. (2019)	study of Olodi Apapa Local	data sources were used.
	Government Area, Lagos,	Purposive sampling technique
	Nigeria.	was used to administer 120
		questionnaires. Secondary data
		used in the study include
		records of different types of
		crimes from 2014 to 2018 which
		were obtained from the Nigerian
		Police MSD Section, Oduduwa,
	751 . 11.1.1.1	Ikeja, Lagos.
Olorunfemi, A. O	The Hell-bound bandwagon:	Purposive sampling of 64 and
	train roofing riding in Lagos metropolis	183 of rooftop riders and law- abiding passengers were
	metropons	captured respectively.
T. Kruger and k. Landman	Crime and public transport:	Purposively studied students
(1996)	designing a safer journey	passengers at various bus stops
(1))0)	designing a saler journey	and transport nodes
Le Vigne, (2006)	Public transport safety	Purposive interview of public
Le (1911e, (2000)	i ublic transport safety	transport users at bus stops
Smith and Clarke (2000)	Fear of crime and challenges of	Purposive crime data collection
Sinti una Clarke (2000)	creating safer space	from students at various
	ereating carer space	transport nodes along the city
Gekoski, et al (2015)	Sexual harassment and sexual	Crime data were collected from
	offences on public transport	students' passengers at bus
	I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	stops, train stations and Trams
Loukaitou-sideris., et al (2001)	Crime on public transport	Collected crime data at high
	* *	crime bus stops.
Brantinghan and Brantinghan	Crime prevention in public	Clustered techniques at
(1991)	space	transport nodes
Vania, c., et al (2020)	Sexual violence on the move:	An invitation to fill online
	assessment of youth's	questionnaire was emailed to
	victimization on public	students at the university
	transportation	campus
Andrew D. Newton (2004)	Crime on public transport: static	Clustered survey technique at
	and non-static(moving) crime	transport nodes
	event	
Carlos J. Vilata (2007)	Fear of crime on public	1478 household consists of
	transport in Mexico City	urban dwellers, by means of
		personal-in-home interview of
N	0 1 1 1 1 1 1 1 1 1 1	respondents 15years and older.
Natarajan .,et al (2016)	Sexual victimization of college	An invitation to fill online
	students in public transport	questionnaire was emailed to
	environment.	the students in the college.
	Community safety	

vein, public transit in Nigerian cities are poorly organized and managed especially in relation to international best practices. The physical characteristics of bus stops/stations lack measures such as fencing, lighting, open design and security hardware that would prevent crime and disorder; they also lack other state and local council support services (Harris, 1971).

Observation from the literature shows that scholars have used different methods of study. They have used both primary and secondary data sources. They have also used different statistical techniques, including both quantitative and qualitative statistical techniques. Table 1 shows the list of some literature and the methods of study.

Suggestions from literature and conclusion

The review of findings and recommendations of Abenoza, et al., (2018); Asiyanbola and Ayeolowo, (2019); Beetcroft, et al., (2014); Brantingham, et al., (2008, 1995, 1993); Ceccato, et al., (2021, 2020, 2014); Cozen, et al., (2004); Loukaitous-sideris, et al., (2020, 2008, 2001); Lynch, et al., (2008); Natarajan, et al., (2017); Newton, A., (2004); Odufuwa, (2012, 2011); Olojede, et al., (2017, 2016); Yavuz, et al.,(2010); and the Greater London Authority in March 2016, to mention but few call for an approach to public transport users' safety, in particular for female gender and the vulnerable, that goes beyond transport nodes and focuses on a multitemporal whole journey perspective, examining different transit environments, during different hours of the day, weekdays and seasons. This also involve the design of harassment-free environments, wellguarded streets and pedestrian walkways, strengthening social control and management in transport nodes and on the way to them (well-lit, well-maintained routes on the way to or from

References

- Abenoza, R. F., Ceccato, V., Susilo, Y.O. & Oded, C. (2018). Individual travel and bus Stop
- characteristics influencing travelers' safety perceptions. *Transportation Research* Record 2672: 19–28. https://doi.org/10.1177/0361198118758677.
- Ajayi, D.D. and Ajayi, A.P. (2014). Trend Analysis of Crime Incidences and Crime Vulnerability
- Differentials on Urban Transport Facilities in Ibadan. Journal of Intelligent Transportation and Urban Planning, 2(2), 85-97.

transport bus stops/stations), in addition to testing technological solutions, such as real-time digital solutions, CCTVs and apps at particular hotspots of victimization.

In addition, young people's extensive use of modern technology such as mobile phones and apps should be further investigated as resources in crime prevention. The promise is that they can play a special role in helping transit users better plan their trips and ensuring a safer trip as part of precautionary measures travelers take to promote their own safety (agency). An example has been described by Söderström (2011), who found that safety needs of young (disabled) people were differently supported by the use of mobile phones while on public transport (move). Many results also call for a specifically tailored set of measures against sexual violence that targets accepted norms of behaviour that are normalized in some of these transit settings, especially in places that are characterized by poor maintenance. In particular, in high crime areas, the responsibility for safety in transportation nodes and surrounding areas has to be more in focus. Lack of cooperation between public and private transit stakeholders creates a grey zone in which few actors are willing to take charge of safety problems or share costs beyond their predefined roles.

More so, increase supply and effective regulations of public transport, good location design and management of bus stops, motor parks, improve travel information and transport infrastructure, adequate law enforcement, increase in job opportunities, provision of affordable travel fare, increase public awareness campaign on the security of public transport and popular stake holder participation in public transport planning and management are key to curb insecurity in our living, work and play environment.

- Alemika, E and Chukwuma, I. (2005). Criminal victimization and fear of crime in Lagos Metropolis, Nigeria. Clean Foundation Monograph Series, No1.
- Armitage, R. and Joyce, C. (2017). Re-building Crime Prevention through Environmental Design (CPTED). http://eprints.hud.ac.uk/id/eprints/ 30335/
- Asiyanbola A.R. and Ayeolowo, S.D. (2019). Urban crime and insecurity: A study of Olodi Apapa Local Government Area, Lagos Nigeria. Proceedings of the 1st International Conference on Engineering and

Insecurity in Public Transport: A Growing World Concern

Environmental Sciences organized by the College of Engineering and Environmental Sciences, Osun State University, Osogbo, Osun State, Nigeria. $5^{th} - 7^{th}$ November, 2019 Pp. 1006 – 1017

- Block R. and Block, C. (2000). The Bronx and Chicago: Street Robbery in the Environs of rapid transit stations. DOI: 10.4135/978145220369.N11, Corpus ID: 133047821
- Brantingham, P. and Brantingham, P. (2008). Crime Pattern Theory. In: Wortley, R., and Mazzerole, L (Eds) *Environmental Criminology and Crime Analysis*. Willan Publishing, Cullompton.
- Brantingham, P. and Brantingham, P. (1995). Criminality of place: Crime generators and crime
- attractors. *European Journal on Criminal Policy and Research*, 3(3), 5–26. DOI:10.1007/BF02242925
- Brantingham, P.L. and Brantingham, P.J. (1993). Environment, routine and situation: Towards a patterns theory of crime. *Journal of Environmental Criminology*, 2(3), 6-9.
- Brantingham, P.J. and Brantingham, P.L. (1981). Environmental Criminology. Beverly Hills, CA: Sage Publications.
- Breetzke, G. D. & Cohn, E. G. (2012). Seasonal Assault and Neighbourhood Deprivation in South Africa: Some Preliminary Findings. *Environment and Behavior*, 44(5), 641-667. DOI:10.6677/ 0013916510397758
- Cao, L. & D.J. Maume Jr. (1993). Urbanization, Inequality, Lifestyles and robbery: A Comprehensive Model. Sociological focus 26(1):11-26. DOI:10.1080/00380237.1993.10570993
- Ceccato, V. (2014). The nature of rape places. *Journal of Environmental Psychology*, 40, 97–107. DOI:10.1016/ j.jenvp. 2014.05.006
- Ceccato, Vania, & Y. Paz (2017). Crime in São Paulo's Metro System: Sexual Crimes against Women. *Crime Prevention and Community Safety* 19(3), pp 211–226..
- Ceccato, V., Li, G., & Haining, R. (2018). The ecology of outdoor rape: The case of Stockholm, Sweden. *European Journal of Criminology*, 16(2), 210–236. DOI:10.1177/1477370818770842
- Ceccato, V., & Loukaitou-Sideris, A. (2020). *Transit crime* and sexual violence in cities: International evidence and prevention. London: Routledge.
- Clarke, R.V. & Eck, J. (2003). Become a Problem-solving Crime Analyst. London: Jill Dando Institute of Crime Science.
- Clifton, D. (2009). Security and a Sustainable World. Journal of Sustainable Development. Vol.2 No 3.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44(4),.588–608. doi:10.2307/2094589
- Cozens, P. Richard, N. Jeremy, W. and David, H. (2003).

Managing Crime and the Fear of Crime at Railway Stations—A Case Study in South Wales (UK). *International Journal of Transport Management*1: 121–132.

- Crime Concern (2004). People's Perceptions of Personal Security and Their Concerns about Crime on Public Transport." London: Department for Transport, Mineta Transportation Institute.
- Delbosc, Alexa, and Graham Currie (2011). Modelling the causes and consequences of perceptions of personal safety on public transport ridership." Australian Transport Reasearch Forum. Adelaide, Australia: http://www.patrec.org/atrf.aspx.
- Dragu, V., Roman, E. & Roman, V. (2013). Quality assessment in urban public transport.
- Theoretical and Empirical Research in Urban Management, 8(3), 32-43.
- Eck, J and d, Weisburd. (1995). Crime Places in Crime Theory. In: J. Eck and D. Weisburd (Eds) *Crime and Place*. Crime Prevention studies Vol 1V, New York: criminal Justice Press, pp 1-33.
- Ekblom, P. (2011). Deconstructing CPTE and reconstructing it for practice, knowledge management and research. *European Journal on Criminal Policy and Research*, 17, 7-28.
- Fadare, S. & Oduwaye, A. (2009). Rebranding Lagos through regeneration. Real Corp 2009 Book of Proceedings Tagungsband
- Felson, M. and Boba, R. (2010). *Crime and everyday life* (4th Ed.). Sage Publications.
- Felson, M., & Eckert, M. (2017). *Introductory criminology: The study of risky situations.* New York, NY; Abingdon: Taylor and Francis
- Felson, M., M. Belanger, G. Bichler, C. Bruzinski, G. Campbel, c Freid, K. Grofik, I. Mazur, A O'Regan, P. Sweeney, A. Ullma & L,. Williams, L. (1996). Redesigning Hell: Preventing Crime and Disorder at the Port Authority Bus Terminal. In: R. Clarke. Monsey (Eds) *Preventing Mass Transit Crime: Crime Prevention Studies* Vol. 6, NY: Willow Tree Press, Pp 5-93.
- Gekoski, A., Jacqueline, M. G., Joanna, R.A. & Miranda A.H.H. (2015). 'What Works' in Reducing Sexual Harassment and Sexual Offences on Public Transport Nationally and Internationally: A Rapid Evidence Assessment. London: Middlesex University London.
- Gwilliam, K. (2003). Urban Transport in Developing Countries. Transport Reviews, Vol. 23, No. 2, 197 – 216. http://www.tandfonline.com/doi/abs/ 10.1080/01441640309893#.
- Harris, O. Jr. (1971). 'A Methodology For Developing Security Design Criteria for Subways'. Washington, DC: Urban Mass Transit Administration, Report No: UMTA-URT—5(70) 71-4.
- Le Beau, J., (2002). The Impact of a Hurricane on Routine

Activities and on Calls for Police Service: Charlotte, North Carolina and Hurricane Hugo. *Crime Prevention and Safety, an International Journal.* 4 (1): 53-64

- Kinney, J. B., Brantingham, P. L., Wuschke, K., Kirk, M. G., & Brantingham, P. J. (2008). C r i m e attractors, generators and detractors: Land use and urban crime opportunities. *Built Environment*, 34(1), 62–74.
- Loukaitou-Sideris, A., Liggett, R., & Iseki, H. (2001). The geography of transit crime: Documentation and Evaluation of crime incidence on and around the Green Stations in Los Angeles. *Journal of Planning Education and Research*, 22:2, 135-151.
- Maimon, D. & Browning, C.R. (2012). Adolescents Violent Victimization in the Neighbourhood: Situational and Contextual Determinants, *The British Journal of Criminology*, 52:4, 808-833. https://doi.org/10.1093/bjc/azs013
- Natarajan, M. (2016). Rapid assessment of "eve teasing" (sexual harassment) of young women during the commute to college in India. *Crime Science*, 5(1), 1–11. doi:10.1186/s40163-016-0054-9
- Newton, A. 2008. Study of bus route crime risk in urban areas: The changing environs of a bus journey. *Built Environment*, 34(1), 88-103.
- Odufuwa, B.O. (2012a). Passengers' Perception of the Effects of Crime Incidents on Patronage of Public Transport in a Nigerian Megacity: A Case Study of Lagos Metropolis. *Journal of Environmental Management and Safety*, 3(2): 170-187.
- Odufuwa, B.O. (2012b). Gender and Safety in Public Transportation: An Exploration Study in Lagos Metropolis, Nigeria, Institute for Housing and Urban Development Studies, Erasmus University Rotterdam, http://hdl.handle.net/2105/12208, accessed 24.08.2018.
- Odufuwa,B. (2011), Gender perspectives of crimes in public transport in metropolitan Lagos, Nigeria. An Unpublished Ph.D Post Field Report of Department of Urban and Regional Planning, University of Ibadan, Nigeria.
- Olojede, O., Daramola, O., & Olufemi, B. (2017). Metropolitan Transport Safety and Security: An African Experience. *Journal of Transportation Safety* & *Security*, 9(4): 383-402.
- Olojede, O.A (2019). The Hell-Bound Bandwagon: Train Rooftop Riding in Lagos Metropolis, Nigeria. ResearchGate
- Olojede, O.A (2019). Urban transport security: analysis of

transit crime in Osogbo, Nigeria, Anallelle Uniiversiitățiiiidiin Oradea, *Seriia Geografiie* XXIX, no. 1//2019, pp.9-18

- Omidiji A. A., & Ibitoye, S. A. (2010). Crime and Road Crashes Prevention in Public Transportation System in Nigeria: The Case Study of Kwara, Kogi and Ekiti States. 24th Annual Conference – Building on 50 years of road and transport research, Melbourne, Australia.
- Otu, D. (2017). Safety Challenges at the Motor Parks: a case of the Nigerian 'Agberos'. *Asian Research Journal of Arts and Social Science*. 4(2), 1-20, 2017.
- Shaw, C.R. & Mckay, H.D. (1942). Juvenile delinquency and urban areas: A study of rates of delinquencies in relation to differential characteristics of local communities in American cities. University of Chicago Press.
- Soderstrom, S. (2011). Staying Safe while on the move: Exploring difference in disabled and non-disabled Young People's Perception of the mobile phone's significance in daily life. Young Nordic Journal of Youth Research, 19:1, Doi: 10.1177/11033 08810019106
- Uittenbogaard, C.A. (2014). Crime Clusters and Safety in Underground Stations, unpublished PhD Thesis, Department of Real Estate and Construction, School of Architecture and the Built Environment, KTH Royal Institute of Technology.
- Weisburd, D., Groff, E. R., and Yang, S.M. (2012). The criminology of Place: Street segments and our understanding of the crime problem. Oxford University Press.
- Wikstrom, P. O. H. and Treiber, K. (2017). Beyond risk factor": an analytical approach to crime prevention. DOI: 10.1007/978-3-319-44124-5_8
- Wilson, J. & Kelling, G. (1982). Broken windows. *Atlantic Monthly*, 249(3), 29-38.
- Wojuade, C.A & Badiora. A.I (2017). Designing out Crime at Bus Terminals in Nigeria: An Exploratory Analysis. *Journal of Social Research.* 1:2. DOI: https://doi.org/10.24297/jssr.v11i2.6365
- Wortley, R. (2008) Situational crime prevention. In: R.
 Wortley & L. Mazerolle (Eds) *Environmental Criminology and Crime Analysis.* Cullompton, UK: Willan Publishing
- Yavuz, N and Welch, E. W. (2010). Addressing Fear of Crime in Public Space: Gender Differences in Reaction to Safety Measures in Train Transit. Urban Studies, 47:12, 2491-2515. https://doi.org./ 10.1177/0042098009359033