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Road Users' Perceptions of Causes and Effects of Traffic Congestion in Ile-Ife, Nigeria

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Abstract

This study examined the view of road users on the causes and effects of road traffic congestion in Ile-Ife, a traditional and ancient city in Nigeria. A questionnaire survey was conducted to investigate the causes and effects of congestion from different categories of road users (drivers, commuters, motorcyclist, and pedestrians) selected purposively from eight road junctions noted for high rate of road traffic congestions in Ile-Ife. A total of 240 respondents were surveyed. Descriptive statistics and Relative Important Index (RII) were used for the analysis. The results revealed that both recurring and nonrecurring congestion were experienced by the respondent, while majority (60.5%) spent between 21 to 40 minutes in traffic congestion. The respondents identified 10 most important causes of road traffic congestion to include: bad road and potholes (RII=0.764); bad driver attitudes/ reckless passenger scouting by commercial bus drivers (RII=0.754): social events (RII=0.753); (4) lack of parking space (RII=0.748); narrow road width (RII=0.738); activities of traders/ street hawkers (RII=0.720); high volume of traffic at peak hours (RII=0.713). The least perceived causes of traffic congestion in the study area are indiscriminate parking on road sides (RII=.0.708); absence of traffic officers at road junctions (RII=.0.700); and disregard for road regulations (RII=0.643). Eight main effects of road traffic congestion identified by the study are : (1) loss of productivity (RII=0.790); time loss (RII=0.748): contribution to air pollution (RII=0.727); lead to stress (RII=0.707); increase noise nuisance (RII=0.688); increase frequency and characteristic of traffic crashes (RII=0.608); it lead to relocation of home and business (RII=0.537); and it increases vehicle operating (RII=0.470). The study suggested measures of managing traffic congestion in an urban setting like Ile-Ife .

Keywords: Traffic congestion, causes of congestion, effects of congestion, relative importance index (RII)

Introduction

Transportation is of paramount importance in the life of any nation as it provides the means of interaction and integration of various regions (Arosanyin, 1998). The primary functions of transportation are to facilitate the movement of people and goods and to provide access to land use activities located within the service area (Falcocchio and Levinson, 2015). As important as transport is to the society, its value often goes unnoticed until something goes wrong (Ogunsanya, 2006).

Problems associated with transport system include among others pollution of the environment, traffic

noise, traffic crash and traffic congestion. The most researched of the setback of transport system is road traffic congestion. Ogunsanya (2006) conceptualized road traffic congestion as a situation when urban road network could no longer accommodate the volume of traffic on it.

Traffic congestion varies from time to time with specific location. The effects of congestion are also numerous. Studies have shown that traffic congestion could play negative role in the people's socio-economic wellbeing, productivity and environmental quality especially in the cities (Popoola *et al.,* 2013; Eja *et al.,* 2011; Ogunsanya, 1984). For instance, traffic congestion increases travel cost and causes physical and psychological discomfort It creates stress and frustration, irritability, high blood pressure and cardiac irregularities (Anitha *et al*., 2016). Also congestion results in man-hour loss which could be quantified in monetary terms. For instance, in 2010, it was estimated that the Lagos State Government will spend about $1,067 million or about N166 billion to temporarily relieve her residents of the perennial traffic congestions on its roads (Olorunponmi, 2010).
Presently, many urban cities in Nigeria are bedeviled with traffic congestion which tends to defy various remedial measures adopted by different governments over the years (Ukpata and Etika , 2012). The problem is no longer limited to mega cities such as Lagos, Ibadan, Benin-City, Port Harcourt, Akure, Abuja, Kano, and Kaduna (Ogunsanya 1984; Ogunbodede 2003). Virtually every state capital city and traditional medium size cities in Nigeria today faces the problem of traffic congestion (Moses, 2011).

Previous research on Nigerian cities has primarily focused on Lagos, Ibadan, Benin-City, Port Harcourt, Akure, Abuja, Kano, and Kaduna, the state capital and mega cities of Nigeria. However, the policy implications derived from studying those cities may not be transferrable to other Nigerian cities because of their very unique characteristics. Few previous researches have explored congestion issues for traditional cities. There are several medium size cities in Nigeria with unsolved traffic congestion problems, including Ile-Ife. This study which focused on Ile-Ife, will therefore have a broader impact on urban policies that address congestion issues and social wellbeing in traditional cities in Nigeria. In other words, this study aims at examining road traffic congestion in Ile-Ife, a traditional and ancient city in Nigeria. The objectives are to determine the causes and effects of traffic congestion. The study also examines the types of road traffic congestion experienced by road users in the city.

Literature Review

Previous research on road traffic congestion in Nigerian cities are numerous (Ogunbodede,2003; Bashiru and Waziri ,2008; Awosusi, 2010; Ukpata and Ekita, 2012; Ajibade, and Mohammed, 2016). Ogunbodede (2003) studied traffic congestion in Akure, Nigeria using GIS approach. The study revealed that traffic congestion is as a result of the increasing growth in motor vehicles without a corresponding improvement in transport facilities such as road network, traffic management techniques. The study also highlighted illegal roadside parking as one of the causes of congestion in the city.

Bashiru and Waziri (2008) examined the problems of intra-urban traffic in Lagos Nigeria . Their findings revealed that 57% of commuters and motorists spend between 30 to 60 minutes on the road due to traffic congestion. They also identified causes of traffic congestion in Lagos to include: presence of pot holes/bad road, trading activities, on-street parking, loading and discharging of passengers, illegal bus stops, flooding/poor drainage, vehicle breakdown, and lack of parking space and lack of traffic light at some road intersections.

Awosusi (2010) in a study of the effects of urban traffic congestion on road users in Ado-Ekiti, Nigeria , found that mental and psychological effects were the major effects of road traffic congestion on human health in the area. The study therefore recommended that, other alternative transportation system, proper city planning and the construction of interchange and overhead bridges were the panacea to urban traffic congestion in the area.

Ukpata and Ekita (2012) examined at traffic congestion in major cities of Nigeria. The result of

their study showed that poor driving habits, poor road network, inadequate road capacity and lack of parking constitute the greatest causes of traffic congestion in Nigeria. Aderamo and Atomode (2011) in a study of traffic congestion at road intersections in Ilorin Nigeria found that traffic wardens and parking problems are the greatest causes of traffic congestion/delays at road intersections in Ilorin. Their study highlighted the fundamental theory of traffic flow to underscore the importance of traffic flow characteristics such as flow, density and velocity to the planning, design and operation of urban roads. In a another study in Abuja, Agbonika (2011) found that only 18.57% of the sampled commuting population lived within the city centre. This causes serious congestion problem due to mass movement within the city around (8.00 am) and evening (6.00pm) respectively.

Biliyamin and Abosede (2012) carried out study on effects of congestion and travel time variability along Abuja Keffi Corridor in Nigeria. In their study, it was found that a measure related to bus stops provision is most effective in reducing congestion along this corridor. It is recommended that the Federal Capital Territory Administration (FCTA) should develop more explicit policy tools for mitigating the traffic impact along this outer ring corridor of Abuja.

Several other studies have examined traffic flow and the way out of the problems of traffic congestion in Nigerian cities (e.g. Ogunsanya 1984; Ajibade, and Mohammed, 2016; Ajayi, 2018). For instance, Ogunsanya (1984) examined the impact of the use of odd and even numbered vehicles on alternate days in reducing congestion on the urban roads. The result of the study indicated that the restraint technique worked only during the first few months of its introduction. The basic causes of the subsequent failure was attributed to : purchase of a second car - one with an even, the other with an odd number; procession of two numbers, one even, the other odd, for the same vehicle ; and corrupt traffic-wardens who when bribed allowed both odd and even number vehicles to be used on same day.

Studies in Ghana have also established the causes and possible effects of traffic congestion on the society (e.g. Abane, 1993; Takyi *et al. 2013;* Agyapong and Ojo ,2018). For instance, Agyapong and Ojo (2018) assessed the causes and effects of traffic congestion in Accra Central Market, Ghana and how it can be managed from the user's perspective. Narrow roads, bad attitude of traders and drivers are the major causes of traffic congestion identified by the study. While time-consuming and los of productivity were identified as the main effects of congestion. Takyi *et al.* (2013) assesses the extent to which congestion affects workers' productivity in Kumasi Metropolis, Ghana. Their findings indicated that mobility in Kumasi Metropolis is restricted due to congestion, causing excessive travel delays, particularly, during peak hours and negatively affecting productivity. From the foregoing, this study attempts to update knowledge on traffic congestion in Ile-Ife, a traditional and ancient city located in Southwestern Nigeria

Methods and Materials

Study area

Ile-Ife is one of the traditional cities in Osun State, Nigeria. It lies between latitudes 7°28′30″ and 7°18′00″ North of the Equator and between and longitudes 4°27′00″ and 4°37′30″ East of the Greenwich Meridian . The township comprises two local government areas (LGAs) and an area council: Ife Central LGA , Ife East LGA and Modakeke Area Council. Ile-Ife is about 200km NE of Lagos. According to the 2006 population census, the population of Ife Central LGA and Ife East LGA (including the area council) was 355,341.

Ile-Ife has witnessed remarkable growth both in population and physical development. An assessment of the internal arrangement of the city shows that Ile-Ife has three functional and distinguishable, yet interrelated nodes which play prominent roles in the physical cum socio-economic development of the city. The Obafemi Awolowo University campus, the Mayfair-Sabo- and Lagere – Aderemi Road/Enuwa (Palace) commercial axis and the interior or core of the city, around the King's (Oba's) palace, are

perfectly fussed to enhance and reflect the spatial growth and socio-economic integration of this fast growing ancient city. The area is the home to one of the largest universities in Nigeria, Obafemi Awolowo University (OAU), and it is about 40km from Osogbo, the Osun State capital.

Ile-Ife is an example of a typical Nigerian traditional city in terms of the provision of transport infrastructure and services (Daramola, 2018). The transport system in Ile-Ife is dominated by road transportation. Transport Infrastructure such as parking lots, traffic light, pedestrian crossing, pedestrian walkway, clearly defined bus stops are lacking in the city (Olawole and Olayiwola, 2018). The roads themselves are narrow (3,3 meters in width) and usually without road shoulders and pedestrian walkway (Ipingbemi 2010; Olapoju, 2016). The intra-urban movement in the city is closely related to the existing land-use patterns, particularly the areal distribution of housing, employment opportunities and recreation facilities. There are variety of Paratransit transport modes, namely, minibus, taxi, and motorcycles, with different operational characteristics, often providing transport services to different segments of the city population.

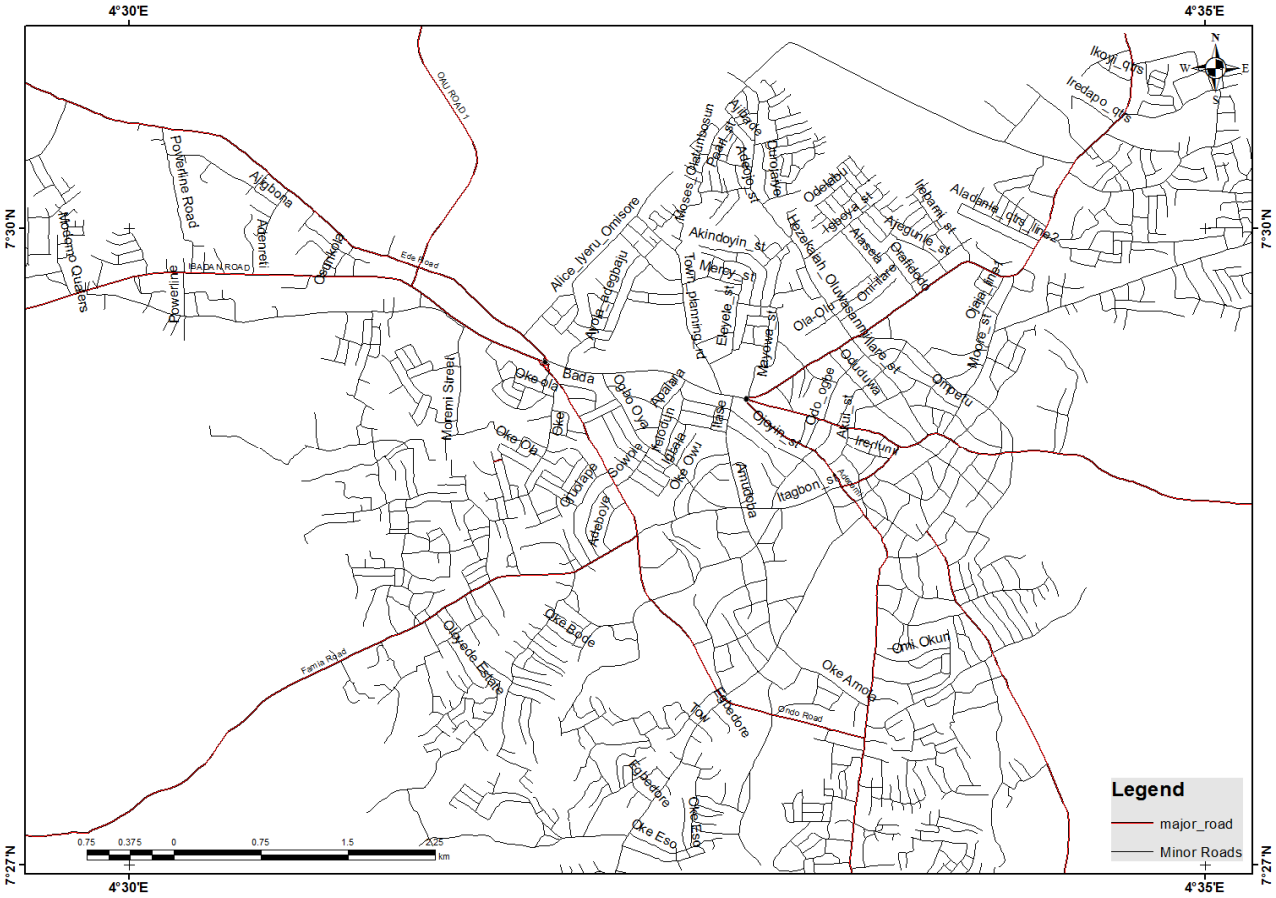

Figure 1. Road map of Ile-Ife

Data

Data used in the study were obtained from a survey of different categories of road users conducted in Ile-Ife, Osun State, Nigeria, in 2017. The study utilized mostly primary data generated from questionnaire survey.

Sample size and sampling technique

Multistage sampling procedure was used to select road users for questionnaire administration. For the study to be truly representative of the city and for the purpose of objective data collection and analysis, eight major junctions in the city were selected: Mayfair/Ede Road Junction, Eleyele/Lagere Junction, Odo Ogbe Market/London Street Junction, Sabo/ Road 7/Oni Ilare, OAUTHC/Oranfe Junction, Moore/NTA Junction, Ifewara/Ilode Junction and Famia/Ondo Junction. At each junction , willing road users in the any of these categories - traders, shoppers, drivers, pedestrians and commuters were purposively selected. However, the selection was made in such a way that the different categories of road users were equally represented. In total 240 respondents were interviewed (Table 1). Interviews were conducted, face to face, with the sampled respondents by the researcher and a trained research assistant.

Table 1 Distribution of samples

No	**Location**	Total Sampled
1	Mayfair/Ede Road Junction	30
2	Eleyele/Lagere Junction	30
3	Odo Ogbe Market/London Street Junction	30
4	Sabo/ Road 7/Oni Ilare	30
5	OAUTHC/Oranfe Junction	30
6	Moore/NTA Junction	30
7	Ifewara/Ilode Junction	30
8	Famia/Ondo Junction	30
Total		240

Authors' Field Survey 2018

Survey instrument

The questionnaire used for the study was divided into three parts. The first part comprised of questions on socio-economic characteristics of the respondents while the second part contained questions on traffic congestion and its causes. The last part comprised of question on respondents' perception of the effects of congestions. Data on causes and effects of congestion were obtained using a Likert-type scale ranging from '1' for strongly disagree; '2' disagree; '3' barely Agree; '4' for agreed and to '5' for strongly agreed.

Data analysis

Data obtained were analysed using percentages and the Relative Importance Index (RII). The RII which was used to weigh the relative influence of the causes traffic congestion and the effect of traffic congestion (see Sambasivan, and Soon, 2007; Olojede et al 2017). The respondents were asked to rate the importance of each of the factor that causes traffic congestion and the effect of traffic congestion following the principle of the Likert Scale (Likert, 1961). In each case, the scale was from 1 to 5, in an ascending order of importance (Strongly Disagree, Disagree, Barely

Agree, Agree and Strongly Agree). These values were transformed into RIIs for each factor. The RII value had a range from 0 to 1 (0 not inclusive), the higher the value of RII, the more important is the cause or effect of congestion as the case may be (Olojede et al, 2017).

Mathematically, this is expressed as

$$RII = \frac{\sum W}{A*N} \ldots\ldots\ldots\ldots\ldots\ldots \text{(Equation 1)}$$

Where W is the weighting given to each factor by the respondents (ranging from 1 to 5). A is the highest weight (i.e. 5) and N is the total number of respondents.

Results

Socio-economic characteristics

Table 2 summarises the socio-economic characteristics of the sample. The study shows that most of the samples were male (67.1%) as compared to female (32.9%). The age distribution of the respondents' shows that age group category of 36–45 years accounted for 37.1% of the samples. This group was followed by the 25–35 age bracket (29.6%). The respondents were literate. About11.3% had a primary education which is the lowest level of education. In terms of employment status, most of the respondents were self employed (63.75%). Additional 23.75% were in government employment. Only 10.83% of the respondents were employed by private sectors organisations. Those engaged in farming activities are very small in proportion.

Table 2: Socio-economic characteristics

Variable	Case	Frequency	Percent
Gender	Male	161	67.08
	Female	79	32.92
Age	18-24 Years	24	10.00
	25-35 Years	71	29.58
	36-45 Years	89	37.08
	46-55 Years	42	17.50
	56-65 Years	14	5.83
Educational Qualification	Primary School	27	11.25
	Secondary School	108	45.00
	A Level/ND/NCE	14	5.83
	HND/First degree	70	29.17
	Postgraduate	21	8.75
Employment Status	Farming	4	1.67
	Self Employed	153	63.75
	Private sector employee	26	10.83
	Public sector employee	57	23.75

Authors' Field Survey 2018

Travel characteristics and Congestion

The study also surveyed respondents' travel characteristics to work place. The components of work trips examined include modes of movement and travel time and costs of travel.

Travel modes and time

Most (45 %) of respondents used commercial bus to work (Figure 2). About 32.5 % of the uses motorcycle taxis for work trips (trips to farm are also considered as work trips).Those that uses private vehicle to commutes to work are 17.1%. A

few of the samples (5.4 %) walk to their work place.

Table 3 presents travel time of the samples by their employment status. In aggregate, the most common work trip length in terms of time was between 16 to 20 minutes (26.7%). The second most common time was 26–30 minutes (19.6%). About 17.9% of the respondents travelled between 21 - 25 Minutes to work. The distribution of travel time varies by employment status. For instance, all farmers travelled between 26-30 minutes to their farmlands (see Table 3)

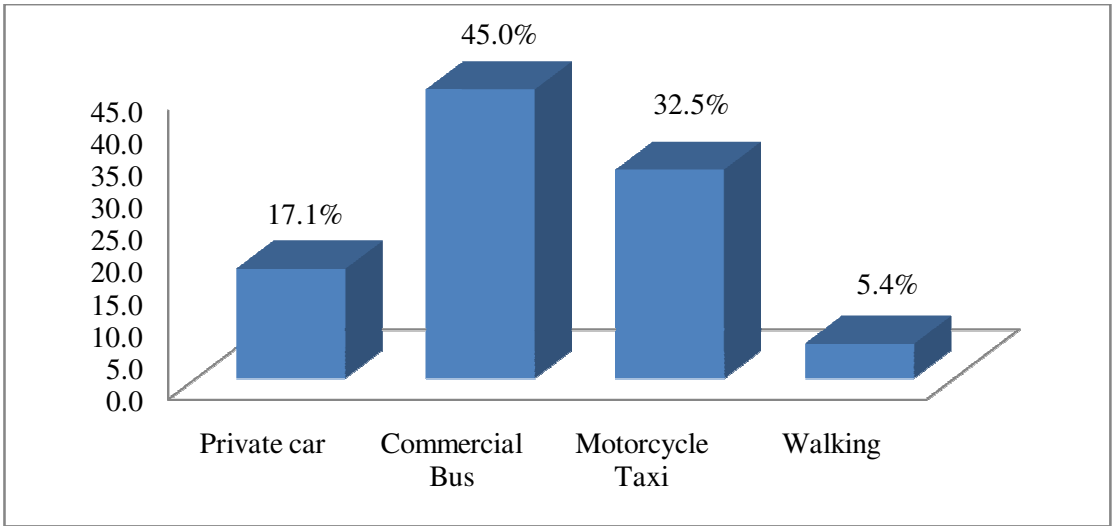

Figure 2. Travel modes

Table 3. Time travelled to work (in %)

Travel Time	Employment Status (%)				
	Farming	Self employed	Private Sector Employee	Public Sector Employee	Total
< 10 Minutes	0.0	8.5	11.5	8.8	8.8
11 - 15 Minutes	0.0	15.7	19.2	5.3	13.3
16 - 20 Minutes	0.0	28.1	15.4	29.8	26.7
21 - 25 Minutes	0.0	17.0	15.4	22.8	17.9
26 - 30 Minutes	100.0	18.3	30.8	12.3	19.6
>30 Minutes	0.0	12.4	7.7	21.1	13.8

Authors' Field Survey 2018

Characteristics of traffic congestions commonly experienced by respondents

The characteristics of traffic congestion experienced in the city by the respondents are shown in Table 4. Further analysis shows that 46.3% of the respondents are of the view that traffic congestion in Ile-Ife occurred daily. About 36.7% of the respondents claimed congestion occurred most at weekends. Festival periods were perceived by 17.1% of the respondents as days of the week with high level of congestion.

In terms of the frequency of congestion experienced, about 44.2% of the respondents experienced congestion frequently. The proportion of the respondents who experienced congestion occasionally was 38.8%. Additional 17.1% of the respondents rarely experienced congestion (Table 4).

The types of congestion experienced by the respondent are recurrent and nonrecurring. Recurring congestion (i.e. congestion regularly experienced during morning and evening rush hours) was a regular occurrence to majority (75%) of the respondents while as high as 81.3% of the respondents experienced nonrecurring congestion occasionally (see figure 3). Nonrecurring congestions are delay in traffic caused by non-predictable events such as vehicle breakdowns, road traffic crashes, road repair and special events (see Falcocchio and Levinson 2015, 35)

Table 4 also presents time spent in minutes in traffic congestion as experienced by the respondents. The duration with the highest responses was between 26 and 30 minutes (34.2%). Not far behind, 26.3% .of the respondent's experienced of traffic congestion between 21 and 30 minutes. Additional 11.3% of the respondents spent as high as 41 to 50 minutes in traffic with very few respondents (3.8%) spending more than 51 minutes in traffic congestion.

Table 4. Characteristics of traffic congestions

Variable	Case	Frequency	Percent
Days with highest level of congestion	Week days	111	46.3
	Weekend	88	36.7
	Festival periods	41	17.1
Frequency of Congestion	Frequently	106	44.2
	Occasionally	93	38.8
	Rarely	41	17.1
Duration of congestion	< 10 Minutes	38	15.8
	11 - 20 Minutes	21	8.8
	21 - 30 Minutes	63	26.3
	31 - 40 Minutes	82	34.2
	41 - 50 Minutes	27	11.3
	51 - 60 Minutes	9	3.8

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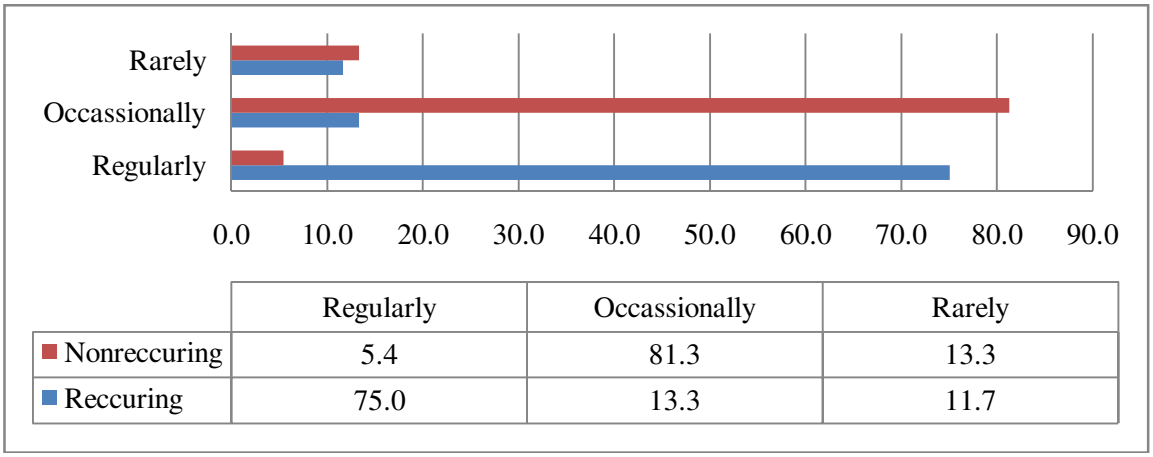

	Regularly	Occassionally	Rarely
Nonreccuring	5.4	81.3	13.3
Reccuring	75.0	13.3	11.7

Figure 3. Type and frequency of congestion experienced by respondents

Causes of Traffic Congestion

The data collected from the questionnaire was analyzed from the perspective of road users. The relative importance index, RII, was computed for each cause to identify the most significant causes. The causes were ranked based on RII values. From the ranking assigned to each cause of congestion, we were able to identify the most important causes of traffic congestion in Ile – Ife.

Table 5 shows the RII ranking of the causes of traffic congestion in the study area. Ten causes of congestion were identified and ranked by the respondents (Table 5). The most important cause of traffic congestion as perceived by the respondents were: (1) bad road and potholes (RII=0.764); (2) bad drivers attitudes/reckless passenger scouting by commercial bus drivers (RII=0.754): (3) social events (RII=0.753); (4) lack of parking space (RII=0.748); (5) narrow road width (RII=0.738); (6) activities of traders/ street hawkers (RII=0.720); (7) High volume of traffic at Peak hours (RII=0.713). The least perceived causes of traffic congestion in the study area are indiscriminate parking on road sides (RII=.0.708); absence of traffic officers at road junctions (RII=.0.700); and disregard for road regulations (RII=0.643).

Effects of Traffic Congestion

Respondents' perceptions of the effect of congestion vary greatly from among them. Table 6 shows respondents' distribution on how they perceive hazards associated with road traffic congestion. Based on RII ranking, the important effects of congestion as perceived by respondents were: (1) loss of productivity (RII=0.790); (2) time loss (RII=0.748): (3) contribution to air pollution (RII=0.727); (4) lead to stress (RII=0.707); (5) increase noise nuisance (RII=0.688); (6) Increase frequency and characteristic of traffic crashes (RII=0.608). The least perceived effects of traffic congestion in the study area are: it lead to relocation of home and business (RII=0.537); and it increases vehicle operating (RII=0.470).

Table 5: Ranking of causes of traffic congestion

No	Causes of Congestion	Percentage of respondents scoring					Sum	A*N	RII	Rank
		SD	D	BA	A	SA				
1	Activities of traders/ Street hawkers	10.4	16.7	14.2	20	38.8	864	1200	0.720	6
2	Indiscriminate Parking on road sides	21.7	5.8	7.9	25.8	38.8	850	1200	0.708	8
3	Narrow road width	11.7	12.9	11.3	22.9	41.3	886	1200	0.738	5
4	Bad road and Pot holes	7.9	8.8	15.8	28.3	39.2	917	1200	0.764	1
5	Social Events	12.1	4.6	17.5	26.7	39.2	903	1200	0.753	3
6	Disregard for road regulations	13.8	20.4	24.2	14.2	27.5	771	1200	0.643	10
7	Lack of parking space	11.7	9.2	10	31.7	37.5	898	1200	0.748	4
8	Bad drivers attitudes/reckless passenger scouting by commercial bus	7.5	10	14.2	34.6	33.8	905	1200	0.754	2
9	High volume of traffic at peak hours	11.3	16.3	17.9	13.8	40.8	856	1200	0.713	7
10	Absence of traffic officers at junctions	9.2	12.1	22.9	31.3	24.6	840	1200	0.700	9

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Table 6: Effects of Traffic Congestion

No	Effects of Congestion	Percentage of respondents scoring					Sum	A*N	RII	Rank
		SD	D	BA	A	SA				
1	Increased vehicle operating costs	23.3	39.6	21.7	9.6	5.8	564	1200	0.470	8
2	Time loss	7.9	9.6	18.3	29.2	35.0	897	1200	0.748	2
3	Lead to Stress	19.2	12.5	5.0	22.5	40.8	848	1200	0.707	4
4	Increase noise nuisance	7.5	18.3	20.4	30.0	23.8	826	1200	0.688	5
5	Contribution to air pollution,	7.9	13.3	22.1	20.8	35.8	872	1200	0.727	3
6	Lead to loss of productivity	1.3	10.8	22.1	23.3	42.5	948	1200	0.790	1
7	Increase frequency and characteristic of traffic crashes	8.8	24.2	33.8	21.3	12.1	729	1200	0.608	6
8	Lead to relocation of home and business	16.7	25.8	36.7	14.2	6.7	644	1200	0.537	7

Authors' Field Survey 2018

Solution to congestion

Respondents were asked to suggest possible solutions to the problems of congestion in the study area. Table 7 shows the distribution of responses. Clearly, repairs of the main service roads in the city (20.8%); construction of bus stops for commercial bus drivers and motorcycle taxi (15.8%); and imposition of traffic regulations stand out as the most recommended solutions. Redistribution of service and commercial centre such schools, retail outlets and markets as a means of reducing congestion was suggested by 12.5% of the respondents. About 12.1% of the respondents believe that placing ban on closure of main service roads during event such as cultural festival, religious festival, funeral service, and chieftaincy title celebration would reduce traffic congestion during weekends and festival periods. Regular and mandatory training of commercial bus and motorcycle taxi service providers on safety issues and respect for the rights of other road users was suggested by 9.2% of the respondents. Some (8.3%) of the respondents believe that relieving traffic congestion would be achieved if traders are forbid from displaying the goods and services on the edge of roads especially on daily and weekly periodic market days.

Table 7. Congestion solution

No	**Congestion Solutions**	Frequency	Percent
1	Ban of display of goods on road edges by traders	20	8.3
2	Construction of commercial car parks	18	7.5
3	Ban on road closure during special events	29	12.1
4	Repairs of the main service roads	50	20.8
5	Traffic regulations	33	13.8
6	Regular and mandatory training of commercial transport service providers	22	9.2
7	Construction of bus stops	38	15.8
8	Service and commercial distribution	30	12.5
	Total	240	100.0

Authors' Field Survey 2018

Discussion

In this study, we analysed causes and effects of traffic congestion in a traditional city in Nigeria. Our findings showed that most respondents had experienced traffic congestions in the course of their commuting to work. They are aware of the causes and have also experienced the effects of traffic congestion as most of them commute to work by commercial buses and motorcycle taxis. Findings revealed that recurring congestion was a regular experience of majority of the respondents. This finding is corroborated by similar findings in the city and other countries in Africa (Ajibade and Mohammed, 2016; Agyapong and Ojo, 2018). Although recurring congestion is common to morning and evening rush hours in the city, the respondents equally identified the existence of nonrecurring in some part of the city and attributed it to non-predictable events such as vehicle breakdowns, road traffic crashes, road repair and special events.

Finding on the causes of congestions indicated that bad road/ potholes and reckless passenger scouting by commercial bus drivers especially the commercial bus driver in the city contributed in no small measure to road traffic congestion. Finding on road condition as the most identified cause of traffic congestion is not surprising as most of the roads in the city were two lanes (3.3 meters width) and lacks road shoulder and pedestrian walkway (Olawole and Olayiwola, 2018; Ipingbemi, 2010). This finding is similar to the outcome of a conference on traffic management held in 2010 in Lagos, where the common view by participants was that the congestion on Lagos roads was mainly caused by the drivers, as four of six people

interviewed mentioned the drivers' attitudes as a major problem on the highways (Olorunponmi, 2010). Similarly, Ukpata and Etika (2012) affirmed that, "Poor driving habit is the most significant cause of traffic congestion in Nigerian urban cities. In addition, an important finding is that street blocking on special occasion was also identified by the respondents as the third important cause of congestion. The study city being a traditional and ancient Yoruba city one should not be surprise that major and minor roads are close to motorist so as to use of the closed roads for entertainment of guests during funeral services, cultural and religious functions.

The findings on the effect of congestion showed loss of productivity and time loss are the highest identified effects of traffic congestion in the city. In terms of time los, the finding is similar to the findings of Bashiru, and Waziri (2008) in Lagos that showed that higher proportions of commuters and motorists in the study area spent an average of 30 to 60 minutes in congested traffic

The respondents identified strategies to reduce the rate of road traffic congestion in the city. Repairs of the main service roads in the city ; construction of bus stops for commercial bus drivers / motorcycle taxi and imposition of traffic regulations stand out as the most recommended solutions.

Policy implications

The study provides additional information on traffic congestion in a traditional and ancient city in Nigeria. Several studies have pointed out some factors such as bad road and potholes; reckless passenger scouting by commercial bus drivers ; lack of parking space; narrow road width; activities of traders/ street hawkers; and high volume of traffic at peak hours as contributing greatly to traffic congestion in cities worldwide. One important finding of this research is contribution of street blocking due to social or religious events as one of the curse of traffic congestion in the study area. The impact of such acts on free flow of vehicles can be imagined especially in a traditional city where majority of the roads are 3.3 meters width. The implication is such that, any diversion of traffic flow due to street blocking on any of the major roads in the city, and coupled with the deviant driving behavior of the city commercial bus drivers/motorcycle taxis riders , will lead to complete shutdown of traffic flow on few other roads in the city.

However, to forestall free flow of vehicular movement in the city, outright ban of the use of street for social and religious events should be pursue with all intent and sincerity by the city administrators. Regular repairs of potholes on the roads need to be resuscitated in the city. The suggestion of Olapoju (2016) on the reinvention of designated bus stops and enforcing bus drivers and commuters to utilize such facility transport infrastructure, must be revisited and implemented.

Similarly, city administrator should regularly rid off the trader and their wares from the road sides not only at the main market (Odo ogbe market) but also at major junctions at all times including evening time especially at Eleyele/Lagere and OAUTHC/Oranfe Junctions. This will, to a large extent reduce the recurrent traffic congestion associated with OAUTHC/Oranfe Junctions at night.

The study identified absence of traffic officers at Junctions as one of the causes of traffic congestion. To reduce the occurrence of traffic congestion in the city, the traffic control unit of the Nigerian Police and other road transport management agencies are encourage to must live up to their responsibilities by ensuring proper management of vehicular movement in the city.

Conclusion

This study examined, through the perception of road users, causes and effects of road traffic congestion in an ancient city, Ile-Ife, Nigeria. The major finding of this study is that traffic congestion can be attributed to causes: bad road network, drivers' attitude, and street blocking for social / religious events. The finding on street blocking is unique and is possibly associated with the particular study area as a traditional city; more studies are needed to confirm this finding from other traditional cities in the country.

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