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Spatio-Temporal Variation in Traffic Congestion Levels in Ile-Ife, Nigeria.

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ABSTRACT
This study examined the spatial distribution of traffic congestion in Ile-Ife, Osun State, Nigeria. This was with the view of determining the spatio-temporal variation of traffic congestion levels in the area.
Primary data was used for the study. The primary data was collected usingspot speed analysis. Eight main junctions were selected for data collection. The junctions are Mayfair/Ede Road, Eleyele/Lagere, Odo-Ogbe Market /London Street, Sabo Road 7/Oni Ilare, OAUTHC/Oranfe, Moore/NTA Road, Ifewara/Ilode and Famia/Ondo Junctions. The spot speed analysis was done by calculating the speed of some selected vehicles. The data was collected on weekday and weekend (Monday to Sunday) at the selected junctions at 0700 – 0900 hour, 1200 – 1400 hour and 1600 – 1800 hour Nigerian Local Standard Time. Data wasanalysed using Stern Distribution of Congestion Level Method.
Result showed that the distribution of congestion locations was significantly dispersed ($Z=4.09$, $p=0.00$) in the study area and that significant variations ($p<0.05$) exist in congestion categories based on speed of vehicles by day and time. The result also showed that medium congestion(15-35m/h) occurred at all locations while OAUTHC/Oranfe, Eleyele/Lagere and Moore /NTA Junctions experienced heavy congestion(0-15m/h)at different times of the day. In terms of traffic composition, commercial buses and motorcycles made up of 78% of vehicles involved in congestion across the area. The study concluded that traffic congestion in the area was characterized by medium to heavy distribution, and peaked in morning and evening time.
KEYWORDS: Traffic congestion, Spatio-temporal variation, congestion, Spot speed analysis

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I. INTRODUCTION

Transport is very important in the life of any nation. It is the movement of people, freight and information from one location to the other. It is of paramount importance in the life of any nation as it provides the means of interaction and integration of various regions (Arosanyin, 1998). Transportation also aids the improvement of various sectors of the economy of any given nation (Arosanyin, 1998).

However, there are various challenges associated with transportation ranging from air pollution, traffic noise, traffic congestion and traffic crash. Many research works has been done in the area of traffic congestion especially in the cities of the world. (Goodwin, 1997) defined traffic congestion as the impedance vehicles impose on each other, due to the speed-flow relationship, in conditions where the use of a transport system approaches its capacity.

Traffic congestion varies from time to time withspecific location. There are many causes of congestion, ranging from increasing motorization, poor parking habits, poor road network, inadequate road capacity, lack of parking facilities, poor traffic control/management, poor drainage, presence of heavy vehicles along roads, poorly designed junctions/roundabouts and lack of efficient mass transport system, special events, reluctance to use parking facilities and bus stop, road economic importance and integrated transport systems (Gabriel, 2013).

The effects of congestion are also numerous. Also, 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, 2002). Congestion increases travel cost and causes physical and psychological discomfort, it creates stress and frustration, irritability, high blood pressure and cardiac irregularities. Also congestion results in man-hour loss

which could be quantified in monetary terms for instance, it has been estimated that Lagosians collectively lose 3 billion hours to traffic congestions yearly but if this time were reduced by 20 percent, it would save the state at least $1 billion (about N150 billion) yearlyOlorunpomi, (2010).

The level of traffic congestion vary base on the timing of the day and the location. Some locations experienced high level of congestion than the other location.

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).

This study aims at assessing traffic congestion with the objective establishing the variation of traffic congestion, an ancient medium city, in Nigeria.

II. LITERATURE REVIEW

Several studies have been done in the area of spatio-temporal analysis of traffic congestion in Nigeria and beyond;Atomode,Odusolu and Isah (2019),Stern (2003), Olagunju(2015), Chu et al., (2015) and Jiang et al., (2017).

Atomode, Odusolu and Isah (2019)examined the perception of transport stakeholders on the spatio-temporal pattern of traffic congestion in Lokoja, Nigeria. Traffic volume, pattern and causes of traffic congestion were the data used for the study. The study showed that there was a significant spatio-temporal variation in traffic volume. Poor road condition, indiscriminate parking and turning/manoeuvring difficulties of vehicles were identified as the greatest causes of traffic congestion in the study area. Improvement of road infrastructure such as; road expansion, provision of parking space, introduction of designated intra-urban transport terminals, construction of alternative routes and overhead bridges, and the introduction of high occupancy vehicles were therefore recommended to reduce traffic.

Stern (2013) studied thespatio-temporal patterns of subjectively reported congestion in Tel Aviv metropolitan area, Israel, he emphasized the role of individual's decision making is affected, among other factors, by experience and direct information from the surrounding environment, or indirectly from the media. The study examined the spatio-temporal changes in the subjective map of reported congestion as formed by radio broadcasts in the Tel Aviv metropolitan area, Israel. The aims of the study were to evaluate the spatiotemporal stability of the emerged congestion patterns as a basis for subjective decision making, and to explain its variability as a necessary base for any effort to relieve congestion. His results showed that non-recurrent heavy congestion is likely to be unstable. He also found out that the spatio-temporal fluctuations of congestion were found to associate with traffic volumes caused mainly by weekly-based commuters which include university students, soldiers, and government employees. Based on his study, he concluded that reported information was found suitable for longitudinal research, the only kind which enables a broad understanding of the spatio-temporal pattern and dynamics of traffic congestion

Olagunju (2015)in his work on evaluation oftraffic congestion in developing countrieswas able to identify the diverse patterns of road traffic congestion in relation to human, road traffic environment and causative factors in a Nigeria's major city of Lagos, and two major corridors, Lagos-Ibadan and Lokoja-Abuja, with a view to recommending some cost-effective and sustainable policy options for a better and enhanced intra-urban mobility. The result of the findings revealed the pattern of road traffic bottleneck points, the health implications of congestion on road users, traffic management institutional arrangement and paucity of traffic management infrastructure. The paper recommends the integration of an enduring urban traffic planning and management strategies, such as effective mass transit, strict land-use adherence, effective traffic control and enforcement and integration of traffic management institutions, mechanism at discouraging excessive car usage. The paper also advocates the deployment of ICT tools in tackling the issue of traffic congestion.

Chu et al., (2015) examined the Temporal-Spatial Analysis of Traffic Congestion Based on Modified CTM,hedeveloped a modified cell transmission model (CTM) which was used to depict the temporal-spatial evolution of traffic congestion on urban freeways. Specifically, drivers' adaptive behaviors and the corresponding influence on traffic flows were emphasized. Two piecewise linear regression models also described the relationship of flow and density (occupancy). Several types of cellular connections were designed to depict urban rapid roads with on/off-ramps and junctions. Based on the data collected on freeway of Queen Elizabeth, Ontario, Canada, it was shown that the new model provides a relatively higher accuracy of temporal-spatial evolution of traffic congestions.

Jiang et al., (2017) examined the spatio-temporal propagation of traffic jamsin urban traffic networks. The aim of the study was done to have a better understanding of the spatio-temporal propagation of traffic jams in urban centres. The spatio-temporal propagation behavior of traffic jams was studied based on collected empirical traffic data. A method was developed to identify influential jam centers and it was found out that jams

spread radially from multiple jam centers with a range of velocities. The finding was to help in the prediction and control of traffic jams.

III. METHODS AND MATERIALS

Study area

Ile-Ife is in south-western Nigeria;it lies between latitudes 7°28′30″N and 7°18′0″N; and longitudes 4°27′0″E and 4°37′30″E. Itcontains two Local Government Areas: Ife Central and Ife East Local Government Areas and Modakeke Area Council. Ile-Ife is about 200km NE of Lagos (Olupona, 2011).

The study area has a population of 355,341 inhabitants in 2006 (NPC, 2006), Evidence of urbanization of this area has been said to date back to roughly 500 AD (Mabogunje, 1968). Today, it is one of the prominent towns of Osun state, administratively. It is the source of Yoruba tribe and the first settlement in South-western part of Nigeria (Ajala and Olayiwola, 2013). Ile-Ife is surrounded by rural settlementsand serves as an agricultural trade centre with the presence of various products such as yam, cassava, maize, orange, kola, cocoa and vegetables etc. The area is the home to one of the largest universities in Nigeria, ObafemiAwolowo University (OAU), and it is about 40km to Osogbo, the Osun state capital.

The commonest means of transport in Ile-Ife is by road. Motorcycles, popularly called ‘okada’ and buses are the commercial mode of transport in Ile-Ife. Buses ply some major roads while cars/taxis ply few major routes. However in Ile-Ife, some major routes have no commercial buses or car/taxis only motorcycles. Majority of the roads in Ile-Ife have single lane mostly characterized by very dilapidated conditions. There are many road Junctions along the major roads and minor roads in Ile-Ife (Fig.1) but none of the roads is equipped with modern/computerised traffic management technique except that within the ObafemiAwolowo University campus. However some major roads are being manned by traffic wardens police. The total length of roads in Ile-Ife is 303,546.6128m.

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 socioeconomic development of the city. The ObafemiAwolowo 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, ObafemiAwolowo University (OAU), and it is about 40km from Osogbo, the Osun State capital.

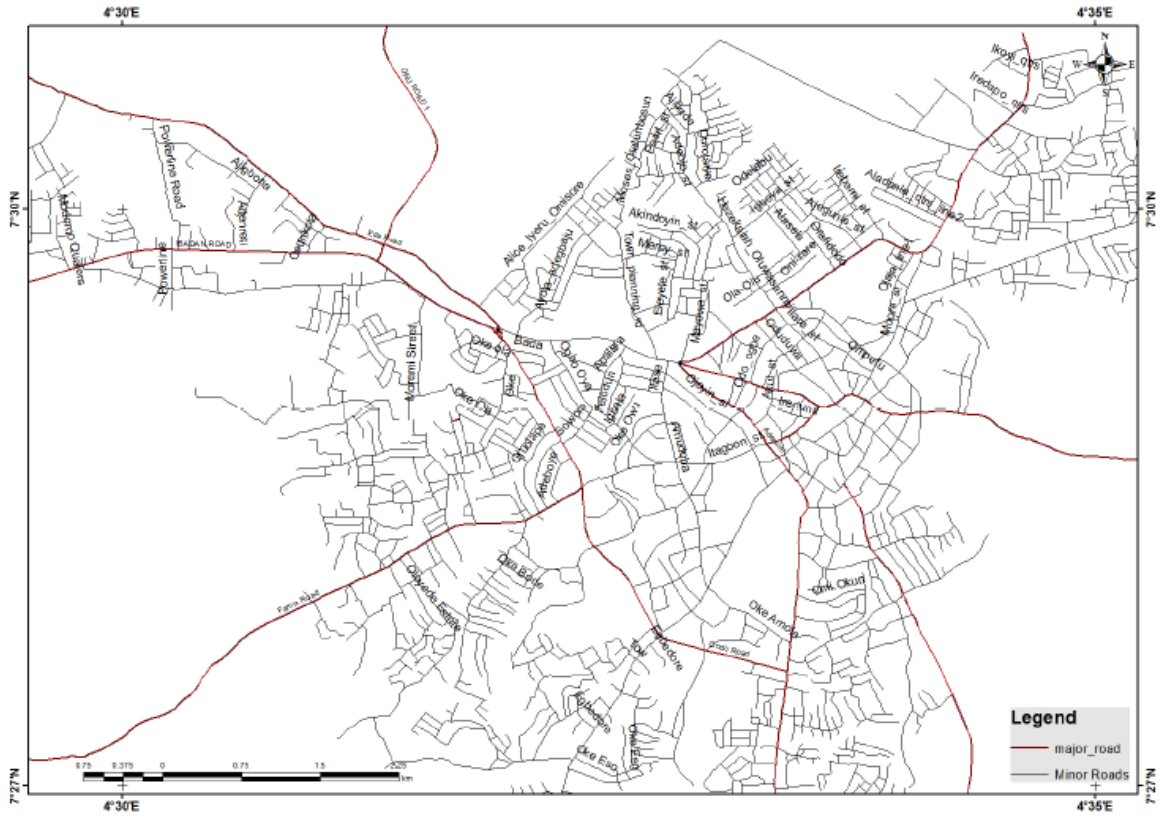

Figure 1: Road map of Ile-Ife

Data:

Primary data was obtained from extensive fieldwork. Data was obtained using speed spot analysis which is often utilized in transportation engineering to describe the speed distribution of a particular traffic stream at specific time intervals. This was done for two hour in the morning, two hours in the afternoon and two hours in the evening each day for seven (7) days at the 8 locations selected.

Sample size and sampling techniques

All major roads in Ife Central, Ife East Local Government Areas and Modakeke Area served as sample frame from which spot speed analysis was conducted.

Based on sample size of 10% of all major junctions, eight major junctions namely Mayfair/Ede Road Junction, Eleyele/Lagere Junction, OdoOgbe Market/London Street/London Street Junction, Sabo Road 7/Oni Ilare, OAUTHC/Oranfe Junction, Moore/NTA Junction, Ifewara/Ilode Junction and Famia/Ondo Junction Road were selected for the speed spot analysis.

Instrument used for data collection

Spot speed analysis was performed using stop watch to record the time for specific spotted vehicles to move between a distance of 100meters. The reading was taken for two hours in the morning, two hours in the afternoon and two hours in the evening for seven days. Spot speed method involve starting a timer as the front wheel of a vehicle crosses the marked at the beginning of the predetermined study length, and was stopped when the vehicles front wheel passes the end of the study length. The date, posted speed limit if any at the point of location, start time, end time, coordinates, study lengths, road name and road type were recorded. This was done for 3 time periods per day; morning, afternoon and evenings for 7 days in each of the 8 selected locations. The average speed was then calculated for each of the locations using the formular (equ. 1)

Speed = Distance /Time …… equ. 1

Data Analysis

Data obtained was analysed using Stern, 2004categorisation of congestion (Table 1). In each of the selected locations, based on speed of the vehicles, the congestion level and the reporting category were classified as shown Table 1

Table 1.Categories and definitions of congestion

Reporting category	Driving speed (km/h)	Congestion level
Traffic Interruption	36-60	Light congestion
Congested	15-35	Medium congestion
Very congested	0-15	Heavy congestion
Gridlocked	0	Gridlocked

Adapted after Stern, 2004

When the average speed falls within 36 – 60km/h, the congestion level is classified as Light congestion and the traffic is described to experience traffic interruption as the traffic flow is still normal. When the speed is between 15 – 35 km/h, the level of congestion is medium congestion and the traffic is said to be congested now the traffic flow has reduced. Furthermore, when the speed is between 0-15km/h, the congestion level is classified as heavy and the traffic is reported to be very congested, traffic flow has drastically reduced and vehicles movement has really slowed down. However, when the speed is 0, the congestion level is gridlocked and the traffic is also described and reported as gridlocked, that is, no movement.

IV. RESULTS

Characteristics of Sampled Locations

The locations for the study consist of eight major road junctions. Each of the location is noted for recurrent traffic congestion. The locations are shown in Table 2.

Table 2. Sampled Locations

S/n	Location	Road type	Nature of Road	
			Tarred/Un-tarred Road	No of Lanes
1.	Mayfair/Ede Road Junction	Secondary Road	Tarred	Double
2.	Eleyele/Lagere Junction	Secondary Road	Tarred	Single
3.	OdoOgbe Market/London Street/London Street Junction	Secondary Road	Tarred	Single
4.	Road 7/Oni Ilare Road Junction	Secondary Road	Tarred	Single
5.	OAUTHC/Oranfe Road Junction	Secondary Road	Tarred	Single
6.	Moore/NTA Road junction	Secondary Road	Tarred	Single
7.	Ifewara/Ilode Junction	Secondary Road	Tarred	Single
8.	Famia/Ondo Road Junction	Secondary Road	Tarred	Single

Spatial Pattern of Congestion locations

The result of point pattern analysis of the spatial pattern of the selected congestion locations (Figure 2) revealed a significant dispersed pattern (Z=4.09, P=0.000)

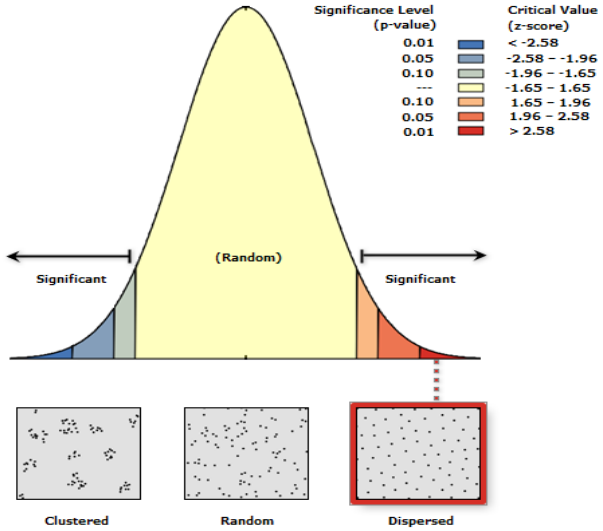

Figure 2.Spatial pattern of selected locations of the study area

Spatial distribution of congestion during morning hours

Table 3 shows the spatial distribution of average vehicle speed and associated level of congestion for morning in the study area, this shows variation in the level of congestion per space and time. On Monday morning, the Mayfair/Ede Road Junction, Moore/NTA Junction, Famia/Ondo Road Junction and Ifewara/Ilode Junctions were congested and the level of congestion was medium congestion which is between 15-35km, This might be attributed to the fact that it was the morning rush hour, as people move to their respective places of work in the morning.

OAUTHC/Oranfe and Eleyele/Lagere Junctions were very congested and the level of congestion defined as heavy congestion. This can be as a result of the fact that it was the morning rush hour as people move to their respective places of work in the morning and especially because of the Teaching Hospital located in this area and Eleyele/Lagere being the commercial hub of the town. On Tuesday and Wednesday morning however, all the Junctions experience medium congestion except OAUTHC/Oranfe Junction which most times experience heavy congestion with average speed of 9.4km/h and 7.56km/h respectively.

On Thursday, Mayfair/Ede Road, Sabo Road 7/Oni Ilare Junction, OdoOgbe Market/London Street/London Street Junction, OAUTHC/Oranfe and Famia/Ondo Road Junctions experience medium congestion while Moore/NTA, Eleyele/Lagere and Ifewara/Ilode Junctions experience Heavy Congestion. That of Friday and Saturday also follow almost the same pattern as all the Junctions experience Medium congestion except Eleyele/Lagere Junction. On Sunday however, all the locations experience medium congestion except Ifewara/Ilode Junction which indicated light congestion.

Table 3.Vehicle speed and associated level of congestion for morning hour

Location	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
	S.	C. L	S.	C. L	S.	C. L	S.	C. L	S.	C. L	S.	C. L	S.	C. L
Mayfair/Ede Road Junction	23.98	MC	16.13	MC	23.9	MC	27.83	MC	36.83	LC	40.36	LC	27.5	MC
Moore/NTA Junction	28.62	MC	37.22	LC	34.7	MC	14.8	HC	34.74	MC	32.04	MC	36.68	LC
Sabo Road 7/Oni Ilare Junction	22.28	MC	22.46	MC	22.21	MC	20.52	MC	19.55	MC	21.49	MC	22.68	MC
OdoOgbe Market/London Street/London Street Junction	28.87	MC	27.32	MC	26.1	MC	25.88	MC	29.56	MC	28.22	MC	31.82	MC
OAUTHC/ORANFE Junction	5.76	HC	9.4	HC	7.56	HC	16.45	MC	18.76	MC	31.93	MC	30.35	MC
ELEYELE/LAGERE Junction	12.56	LC	14.22	HC	11.56	HC	15.84	HC	14.54	HC	15.8	HC	18.94	MC
Famia/Ondo Road Junction	24.48	MC	22.72	MC	21.64	MC	20.52	MC	22.75	MC	19.08	MC	18.5	MC
Ifewara/Ilode Junction	16.5	MC	19.12	MC	24.12	MC	14.29	MC	22.97	MC	27.5	MC	45.58	LC

Key

S = Speed in km/h; CL = Congestion Level

LC = Light Congestion; MC =Medium Congestion; HC=Heavy Congestion and G= Gridlocked

Vehicle speed and associated level of congestion for afternoon hour

The spatial distribution of average vehicle speed and associated level of congestion for afternoon vary per space and time as shown in Table 4. On Monday, the average speed of vehicles at all sampled locations were between 15-35km/h and representing medium level of congestion.

On Tuesday also, all the locations except Ifewara/Ilode Junction experience a level congested defined as Medium Congestion with average speed 15-35km/h, Ifewara/Ilode Junction was under very congested from Tuesday to Saturday with average speed between 0-15km/h. On Wednesday however for other Junctions, all the locations experience medium congestion. ForThursday, OdoOgbe Market/London Street Junction, Eleyele/Lagere Junction and Ifewara/Ilode Junctions were experience heavy congestion while others were under medium congestion.

Traffic flow on Friday and Saturday at Eleyele/Lagere Junction almost witnessed a gridlocked as the speed of vehicles dropped to 3.53km/h and 4.79km/h respectively

Table 4. Vehicle speed and associated level of congestion for afternoon hour

Location	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
	S.	C. L	S.	C. L	S.	C. L	S.	C. L	S.	C. L	S.	C. L	S.	C. L
Mayfair/Ede Road Junction	34.2	MC	20.88	MC	25.7	MC	30.67	MC	26.93	MC	18.86	MC	27	MC
Moore/NTA Junction	30.49	MC	36.25	LC	33.16	MC	32.76	MC	32.94	MC	29.84	MC	35.28	MC
Sabo Road 7/Oni Ilare Junction	18	MC	19.84	MC	21.1	MC	21.38	MC	17.75	MC	21.13	MC	20.01	MC
OdoOgbe Market/London Street Junction	21.24	MC	19.58	MC	20.09	MC	15.23	HC	19.44	MC	20.23	MC	25.88	MC
OAUTHC/ORANFE Junction	30.2	MC	31.1	MC	31.36	MC	31.18	MC	29.23	MC	29.84	MC	31.32	MC
ELEYELE/LAGERE Junction	8.96	HC	8.96	HC	9.94	HC	10.26	HC	3.53	HC	4.79	HC	12.85	HC
Famia/Ondo Road Junction	24.66	MC	21.46	MC	20.41	MC	21.85	MC	19.8	MC	18.4	MC	18.47	MC
IfewSara/Ilode Junction	23.72	MC	7.27	HC	7.96	HC	8.14	HC	8.46	HC	9.97	HC	17.6	MC

Key
S = Speed in km/h; CL Congestion Level
LC: Light Congestion; MC =Medium Congestion; HC=Heavy Congestion and G= Gridlocked

Vehicle speed and associated level of congestion for evening hour

The distribution of congestion from Monday to Saturday during the afternoon indicates variation in congestion per space and time. Tabsle5, shows the variation; Eleyele/Lagere and Ifewara/Ilode were very congested. The average speeds of vehicles at these locations were 0-15km/h (Table 5). The level of congestion may be attributed to the land use type of the two junctions. All other locations witnessed medium congestion as the speed fell between 15-35km/h.

Table5: Vehicle speed and associated level of congestion for evening hour

Location	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
	S.	C. L	S.	C. L	S.	C. L	S.	C. L	S.	C. L	S.	C. L	S.	C. L
Mayfair/Ede Road Junction	17.96	MC	23.04	MC	19.69	MC	25.88	MC	17.82	MC	16.74	MC	27.83	MC
Moore/NTA Junction	33.62	MC	33.95	MC	34.31	MC	34.6	MC	33.19	MC	32.76	MC	33.62	MC
Sabo Road 7/Oni Ilare Junction	17.92	MC	20.84	MC	20.34	MC	19.19	MC	20.34	MC	20.77	MC	22.24	MC
OdoOgbe Market/London Street Junction	20.56	MC	21.85	MC	19.76	MC	15.16	HC	20.12	MC	17.32	MC	29.23	MC
OAUTHC/ORANFE Junction	28.19	MC	31.14	MC	32.148	MC	31.28	MC	32.15	MC	29.74	MC	32.32	MC
ELEYELE/LAGERE Junction	5.76	HC	9.54	HC	9.86	HC	8.5	HC	5.44	HC	6.84	HC	16.06	MC
Famia/Ondo Road Junction	22.28	MC	22.64	MC	21.35	MC	21.78	MC	20.02	MC	17.24	MC	18.58	MC
Ifewara/Ilode Junction	8.03	HC	5.18	HC	5.04	HC	5.8	HC	5.44	HC	5.98	HC	9.07	HC

Key
S = Speed in km/h; CL Congestion Level
LC: Light Congestion; MC =Medium Congestion; HC=Heavy Congestion and G= Gridlocked

V. DISCUSSION

The study revealed that recurrent congestion is the main type of congestion experienced in Ile-Ife. Junctions selected were found to be significantly dispersed. The most occurring congestion based on vehicle speed was medium congestion with vehicles moving at a speed between 15 to 35km/hr. Spatial distribution of congestion was considered for 3 periods; morning, afternoon and evening. Medium congestion was experienced more in most locations in the morning, light congestion was experienced in few Junctions while heavy congestion was experienced in some Junctions than light congestion especially in the evening. This indicates more congestion as people return to there various homes in the evening.

For the afternoon, On Monday morning, all the locations were congested and the level of congestion was medium congestion which is between 15-35km/h. On Tuesday also, all the locations except Ifewara/Ilode Junction were congested with the level of congestion defined as Medium Congestion with average speed 15-35km/h, Ifewara/Ilode Junction was under very congested from Tuesday to Saturday with average speed between 0-15km/h. On Wednesday however for other Junctions, all the locations were under medium congestion. For Thursday, OdoOgbe Market/London Street Junction, Eleyele/Lagere Junction and Ifewara/Ilode Junctions were under heavy congestion while others were under medium congestion. Traffic flow on Friday and Saturday at Eleyele/Lagere Junction almost witnessed a gridlocked as the speed of vehicles dropped to 3.53km/h and 4.79km/h respectively

For evening period, the congestion distribution of traffic flow from Monday to Saturday at Eleyele/Lagere and Ifewara/Ilode Junctions were very congested with congestion level defined as heavy congestion. As discussed earlier, Eleyele/Lagere Junction is commercial zone of the town with high commercial activities in the evening,Ifewara/Ilode Junction is also characterized with some utilities as mentioned previously. All other locations witnessed medium congestion.

Policy implications

The study shows the level of traffic congestion in a traditional and ancient city in Nigeria. There has been several studies on traffic congestion in Nigeria city such as Lagos, Port-Harcout, Ibadan, Kano etc. this study focused on a medium city such as Ile-Ife. From the findings, it was discover that traffic congestion is already being witnessed and there is a need to start planning for enlargement of road in our medium cities in Nigeria (Ajayi, 2018). This will forestall future experience of gridlock congestion level as presently being witnessed in our state capitals in Nigeria.

It was also discovered from the research that the blockage of the road on market days (Olawole and Olayiwola, 2018; Ipingbemi, 2010).might be responsible for the medium congestion experienced around the OdoOgbe market. Therefore it will be necessary to enforce the rule of not displaying good around along the road in order to ease traffic flow. Another important finding of this research is the heavy congestion experienced along OAUTHC/Oranfe junction in the mornings due to staff resuming to their work place, there might be need for the a traffic warden operation in that area to control traffic flow. In line with that also, there might be a need for the authority of the University to get more luxurious staff busses to reduce the number of private cars entering that axis.

VI. CONCLUSION

This study examined the variation in traffic congestion in an ancient city, Ile-Ife, Nigeria. Themajor finding of this study is that trafficcongestion vary from per space and time. As the city develops there the congestion level might increase. It is also worthy of note that the research work was conducted when the ObafemiAwolowo University was out on vacation. The implication of this would have probably be that the congestion level would have been more if the school was on session. A comparative study is therefore suggested to establish this notion also studies are needed to confirm this finding fromother traditional cities in the country.

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