

## Traffic Congestion and Health Information on Road Users' Safety and Wellbeing in Apapa-Badagry Expressway, Lagos, Nigeria

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**Abstract:** This study focused on Safety and wellbeing of road users arising from state of road infrastructure and traffic congestion along Apapa-Badagry Expressway, Lagos, Nigeria. The study covered the health information awareness, Lagos transportation systems, road transport, infrastructure, traffic congestion and factors that may positively or negatively influence effective commuting as well as common occupational safety and wellbeing of road users. Data for this study were collected from primary sources through personal observation and interview of road users, National Union of Road Transport Workers (NURTW), Road Transport Employers Association of Nigeria (RTEAN) as well as Tricycle (keke Marwa) and Motorcycle riders' association leaders. Result obtained from the study indicated that an average of six (6) man-hours is daily lost by road users due to traffic congestion resulting from poor road infrastructure. The study also discovered poor level of health information awareness among road transport users, it also established an increase in reported cases of stress, fatigue, ill health, increased medical bills, increase in number of days observed as sick leave as well as increase in cost of maintenance of the vehicles and energy cost with an increase in road traffic accidents

**Keywords:** Road, Traffic, Congestion, Information, Health, Safety, Wellbeing, Road users.

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### I. Introduction

The means by which people, goods and services are being moved from one location to the other for either profitable or not-for-profit purpose as at when desired is termed transportation. Transportation is also referred to as means by which goods, services and activities required for living and healthiness are being physically accessed by men. It can also be described as the engine and wheel of the society as it aid the globe in moving round and in functioning well. Therefore, transport based on above is one of the most important requirements that need to be effectively fulfilled in any society that aim to achieve meaningful economic, social, political and national development. The mode of transport in Nigeria are: road, rail, air and sea with road accountable for over seventy percent of travels in most African countries. In Nigeria, road transportation is the most patronised form of transportation responsible for over ninety percent movement of goods and services. This road mode of transporting people, goods and services involves the use of cars, buses, lorries, trailers, tankers, tricycles, motorcycles and bicycles. Road transport despite its role in global economic development had been identified as one of the major source of carbon emission in sub Saharan African nations [4].

The effectiveness of transport system and how it contribute to overall happiness of road users was identified as a growing concern. This is due to objective goal of improving welfare of the road users and the consideration of impact of commuting on users' health, safety, journey time, cost, incident and environmental challenges that may occur from either free flow of traffic or adverse road congestion. This concern aligned with concern on the limits of gross domestic product (GDP) as a measure of economic performance, social progress and global interest in measuring and improving people's wellbeing [6]. Road transport can only be effective if users can commute freely without any form of impedance. Traffic impedance or traffic congestion has its foundation linked to mono transport mode nature of Nigerian transport system that arose from the collapsed fortune of railway and Nigerian inland waterway boat services. The failure of rail and sea modes in transporting human, goods and services with near total collapse of the pipeline infrastructure about two decades ago resulted in an increase in vehicular movement, thus, led to increase pressure on the road as well as the overstretching of the road infrastructure that finally triggered the total collapse of public road with associated suffering of road

users in urban cities and along Apapa – Badagry expressway. The phenomenon where excessive pressure is being mounted on road due to high volume of traffic arising from insufficient and deficient road infrastructure, we hereby refer to as traffic congestion. Our definition of traffic congestion is in conformity with [8] explanation on the root cause of transport challenges in Nigeria. The three traffic congestion definition that were stated as ‘situation in which demand for road space exceed supply’; ‘‘the impedance vehicles imposed on each other due to the speed-flow relationship in condition where the use of transport system approach capacity’’; and congestion is relative phenomenon that is linked to the difference between the road system performance that users expect and how the system actually perform were established to be within the context of our definition of traffic congestion.

### **Causes of Traffic Congestion**

Mono road transport system was identified as major cause of traffic congestion [7], the rising demand for road traffic due to the collapse of rail, sea, and pipeline mode of transporting goods and services along Apapa Badagry expressway resulted in traffic congestion and journey delays. This challenge was also propelled by population growth, urban migration, massive importation of used cars, access to cars due to increase in purchasing power of the middle income earners as well as poor driving skills of drivers especially those driving commercial vehicles. Traffic congestion in Apapa – Badagry Expressway affects both private and public transport users with resultant economic losses and other negative social effects like traffic induced safety and health challenges.

Other factors that may be responsible for traffic congestion are urban development, housing, employment, cultural policies, which may cause people to work and live relative to one another [9]. The review of some previous work that identified poor road condition, inadequate road infrastructure, road traffic accidents, inadequate traffic planning, drivers’ behaviours and lack of integrated transport systems as factors that may induced traffic congestion we discovered several researchers, [8] and ] agreed as valid. Illegal road parking was established as another traffic congestion causative factor while another researcher identified road intersection as possible cause. Poor planning of Transport system was added as one of the cause of traffic congestion. Poor engineering planning and design were also established as engineering factor. Breakdown of vehicles, road diversion joints, pedestrian crossing, commercial parking and boarding points were added into the list of origins of traffic congestion, while poorly planned road network and poor traffic management was documented as factor that may trigger traffic congestion.

Traffic congestion in the study area was established to be influenced by all the factors outlined above. In addition, the terrible state of the road that arose from lack of government sincerity in driving national economy via road infrastructural development and lack of continuity in governing the system. Poor political rivalry strategy of project abandonment by opposing political parties, slow pace in road construction activities along the route as well as lack of adequate parking spaces and loading bays for vehicles. Mono working and business operation pattern of 8am to 5pm daily work routine makes traffic flow to be one sided at some specified period thus, compounding traffic challenges experienced by road users. Gross indiscipline among road users and law enforcement officers were also identified to be great source of impediment to traffic flow along the corridor. Lack of alternative roads due to faulty government developmental plans and lack of long range National strategic transport management plan in Nigeria was also established to be a huge driving force behind the excessive traffic congestion and the impairment of road users’ safety and health along the route.

### **Effect of road traffic congestion on road users.**

Journey need adequate planning and time is key in planning, therefore, in commuting, movement from one point to the other must be thoroughly planned and ascertained as practically achievable. Travelling along Apapa – Badagry corridor remains unreliable while residents and road users continually face disturbing hardship in commuting from their various locations. This research finding on unreliable journey time associated with great inconveniences on the commuters was established to be in agreement with [8]. Another scholar discovered that trips generated based on business, work, social and other activities were all impacted by extra time spent on the trips daily, with travel delay occurrence at over ninety percent (90%) of trips [19]. In Apapa - Badagry route, average extra time spent on trips for those covering Badagry to Apapa was established to be over six (6) hours per day due to traffic congestion and occurs daily.

Traffic congestion was established as ally of noise, air pollution, increase fuel cost incurred from stationary operated vehicles [8] while air pollution was identified as the world leading Environmental Health and Safety risks. Exposure of commuters utilising public transport may be eight (8) times higher than those who commute to work via private vehicles. This fact may be possible considering the huge emission from vehicles on traffic congested routes with over ninety seven percent (97%) of public trucks, buses, mini vans, public tricycles and motorcycles lacking air conditioners that may have aided them in minimising pollution exposure via inhalation of emitted substances. Traffic congestion in urban cities that are experiencing rapid development

such as Shanghai, New Delhi, Beijing that share some similar feature with Lagos Nigeria are currently facing acute problems due to steady increase in ambient Particulate Matter (PM) and Nitrogen Dioxide (NO<sub>2</sub>) concentration. These PM and NO<sub>2</sub> were discovered to be in excess of WHO requirement . It is also worthy to note that effluents from road transport is responsible for over seventy percent (70%) of environmental pollution worldwide and about 40% greenhouse gas emission in European cities while motorised vehicles increment was confirmed as source of challenge of street-level pollution in urban cities of Hong Kong, Japan and Singapore . The possibility of road traffic induced pollution in the study area to be above the global 70% average may be high due to the poor conditions of the vehicles plying Apapa-Badagry road.

Furthermore, sources of human exposure to unavoidable air pollution research linked with high emission from road operated vehicles. Some of the emission from road vehicles that may increase during traffic congestion are: Carbon Monoxide (CO); Carbon Dioxide (CO<sub>2</sub>) volatile organic compound (VOC<sub>s</sub>); Hydrocarbons (HCs); Nitrogen Oxides (NO<sub>x</sub>); Particulate matters of aerodynamic diameters 2.5<sub>U<sub>no</sub></sub> (PM<sub>2.5</sub>) . PM<sub>2.5</sub> when inhaled can reach the lung alveoli which in turn may induce body responses and impact cardiovascular respiratory functions, therefore, gave credence to the contribution that linked road traffic and traffic congestion with respiratory and cardiovascular related complications . Others challenges that traffic congestion may impose on the users of Apapa-Badagry road are: impaired sleep and loss of rest hours, traffic stress, psychological stress, ergonomic challenges, fatigue, mental health, Asthma, stomach cramp, loss of lives to fire incidents, road traffic accident, delay in accessing medical facilities and possible loss of life during emergencies, fear of terrorism and possible use of traffic congestion as easy means of terrorism, loss of financial resources on high fuel cost and vehicle maintenance.

### **Health Information Awareness and Road Users**

The importance of information to every individual, group or society is a known fact that cannot be disputed, it is also considered as a valuable resource that places one at an advantageous position. There is also little or nothing that can be done in resolving personal, economic, political, social, educational, and various other issues including transportation development without adequate information in place. It is also an established fact that knowledge and positive attitude enhance population interest in adopting healthy behaviours, . This gives credence to the importance of information as a critical resource that cannot be over-emphasized in these contemporary times. Information both in print and non-print that is timely, relevant, accurate, accessible, available, useable must be at the disposal of individuals, group or even the society for achieving successful operations be it in businesses or personal lives. The lack of adequate dissemination of quality information to the populace could lead to disaster such as loss of man-hour in commuting wrong routes, loss of lives to road traffic accidents and other road traffic challenges. Information is regarded as basic human needs that has been proposed, it's a basic minimum stock of information that is required by all communities to function and survive. The type of information that is required is based on both socio-economic and environmental factors. The highlighted impact of the dynamic force of information where the extension or altering of people's stores of knowledge positively affects their psychological and social well-being when information is used [<sup>30</sup>]. Although, information is an intangible entity, it has the ability to bring about change for the better, which is the ultimate goal of the information society. Furthermore, citing Ajiboye and Tella (2007), information is data that has been processed to be well understood in satisfying the user's query [<sup>30</sup>]. Additionally, information is considered as data that has value in planning, decision making and evaluation of any programme. In the same way from KOC University Library Glossary (2014) I as cited in information is data presented in readily comprehensible form, to which meaning has been attributed within a context for its use. In a more dynamic sense, the message is conveyed using a medium of communication or expression. Bruce (2005) states that, "information plays a significant role in our daily professional and personal lives and we are constantly challenged to take charge of the information that we need for work, study, fun, everyday decisions and tasks [<sup>30</sup>]. Information was affirmed as an intangible entity; it has the ability to bring about change for the better, which is the ultimate goal of the informed society [<sup>30</sup>]. Thus, the need for individuals to be well informed about their location, state of the infrastructure, health and well-being especially as regards to road traffic and safety of road users is germane.

Road traffic information (RTI) is very important to the safety and well-being of every road users because it can help to forestall effect of road congestion, this effects were identified as time wastage on traffic, lateness to work, scheduled appointment failure, anger, discomfort, loss of job, inadequate rest, fatigue and pollution from traffic induced effluents [<sup>19</sup>]. Commuters who are constantly equipped with adequate information about the roads will definitely live healthier. So information regarding road congestion, road hazards, warning regarding accidents locations as well as on-going construction exercises must be made available because they are of great importance to road users daily . Road Traffic congestion has become a menace that is greatly affecting the health and well-being of commuters on daily basis in Nigeria especially along Apapa-Badagry

Expressway due to state of the road infrastructure, business activities within the corridor, population, high volume of vehicles, indiscipline of drivers and road users as well as long haul propelled by high cost of

living within the city centres. The knowledge on Lagos as comprising over 18million inhabitants with between 80-85% of the populace utilising public transport . Apapa to Badagry based on traffic information has an estimated distance of about sixty three (63km) Kilometre from each other and the corridor hosts high trips generated establishments such as Lagos State University (LASU), Adeniran Ogunsanya College of Education (AOCOED), Nigerian Navy Camp, Satellite Town, Festac Town, Alaba International Market, International Trade Fair Complex, Administrative and Staff College of Nigeria (ASCON), Whispering Palm Resort, Nigerian French Language College, Volkswagen Nigeria, Nestle PLC, Tin Can Ports, Nigeria Ports Authority, NIMASA, Nigerian Export Processing Zones (NEPZ) among several others. Apapa-Badagry corridor also accommodate over ninety five (95%) percent of Petroleum products Farm Tanks in Nigeria. The corridor based on objective information is the gateway into Nigeria via the seaports and to other West African countries through the Seme land border.

Considering the huge traffic that are daily generated on that road axis, adequate information on road transport matters is essential for commuters as this aid in trip planning and management. In developed countries information are readily made available to commuters via different information sources and channels. Radio was identified as one of the oldest form with high reliance rate as viable source of information . This view was in agreement with contributions on the role of Lagos Traffic Radio in educating road users on Traffic Management in Lagos as channel of information and education that cannot be exempted. . The radio serves as a useful tool for disseminating vital and quality information because it cuts across diverse population in terms of literacy. However, road users are still saddled with the risk of road traffic congestion and its aftermaths on their safety and health. Despite, several scholarly evidence on importance of information via radio as effective means of disseminating road traffic information to road users, the method is almost at reversal stage in Nigeria due to poor live road traffic content in the broadcasting programmes. Although, there is existence of a special purpose radio traffic station in Lagos that operates via 96.1FM and serves some knowledgeable road users basic information on road traffic congestion, logjams and road traffic incident that induce delay. The station this research discovered has almost zero or near zero content on health risks such as information on how constant exposure to fumes and smoke from exhaust pipes increasingly endangers the lives of commuters and how long hours in congested traffic may impact road users health, high mortality rate and safety.

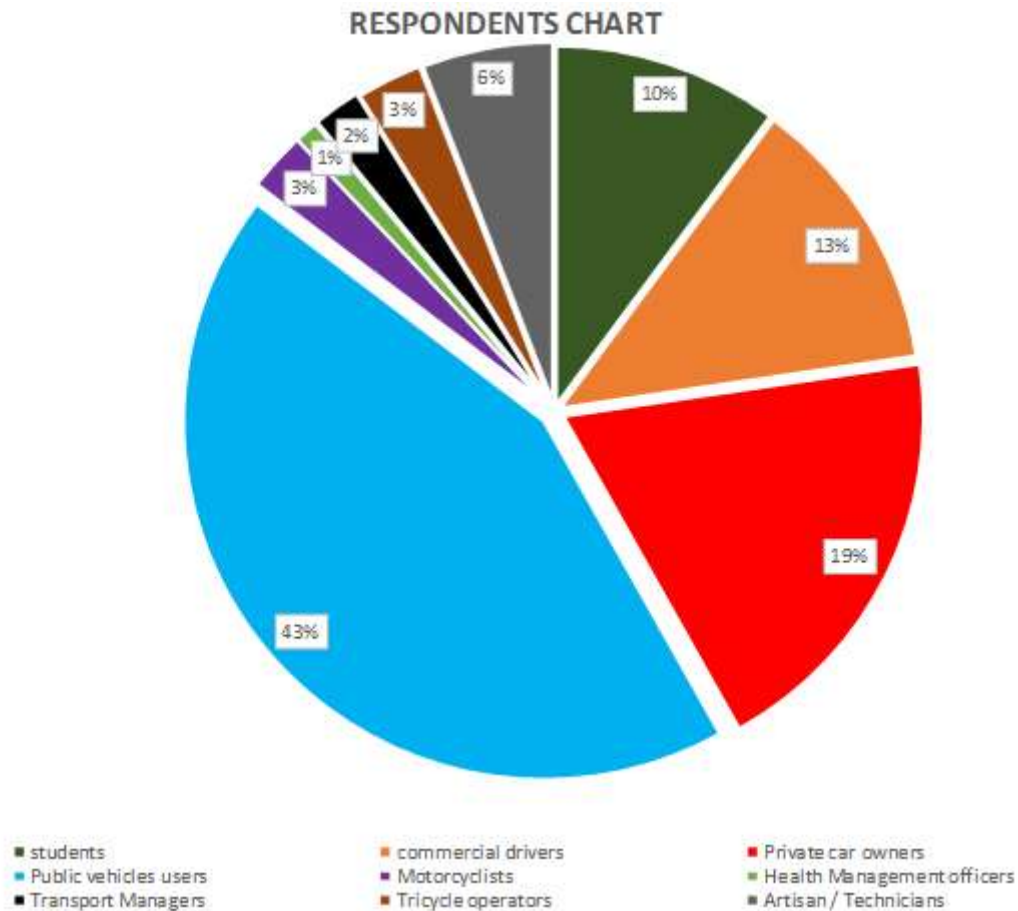
Information from research on wellbeing explained it as a multidimensional concept that may be measured both objectively and subjectively . Aligning [<sup>35</sup>] view with this study that also focused on what we knew about the effect of traffic congestion on subjective road users' safety and wellbeing which can also be referred to as Subjective Wellbeing (SWB) or Subjective Road Users Safety and Wellbeing (SRUSWB). Therefore, SRUSWB is targeted at capturing road users safety and wellbeing as perceived by individuals, based on **OECD (2011:265)** view that “people are the best judges of how their life is going” though this does not erase the importance of objective dimensions of safety and wellbeing (such as income and health). SWUSWB based on **OECD 2013 p.10** definition of SWB we define as “Good mental states, including all of the various evaluations, positive and negative, that people make of their lives, and the affective reactions of people to their experiences” [<sup>37</sup>].

## II. Methodology

The study made use of primary sources of information gathering technique through structured personal interview of road users and personal observation of transport activities within the corridor. Members of National Union of Road Transport Workers (NURTW), Road Transport Employers Association of Nigeria (RTEAN) as well as Tricycle (keke Marwa), Motorcycle (okada) riders' association members and other categories of road users were consulted for the research. Three hundred and seventy-five (375) respondents were interviewed and it comprised of thirty-eight (38) students, forty-seven (47) commercial drivers, seventy-two (72) private car commuters, one hundred and sixty-three (163) public transport users, ten (10) motorcyclists, four (4) health management officers, eight (8) traffic management officers, eleven (11) tricycle operators and twenty-two (22) artisans / technicians. The questions raised covered awareness on health information, average hours spent on road commuting, cost of commuting, basic health challenge, sick leave observance, resting hours, psychological, social and economic impact.

<b>Respondents</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Commercial drivers	47	12.53
Private car users	72	19.2
Public vehicles users	163	43.47
Motorcyclists	10	2.66
Tricycle operators	11	2.93
Health Management Officers	4	1.06
Traffic Management Officers	8	2.13
Students	38	10.13
Artisans / Technicians	22	5.86

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### III. Findings

Traffic gridlock along Apapa – Badagry expressway occurred primarily via the poor condition of the road littered with potholes and failed section that normally slow down vehicular movement. Road construction abandonment in some sections of the road as well as ongoing construction activities impedes traffic flow. Vehicular breakdown, illegal parking along the route and lack of prompt clearance of breakdown vehicles was also identified as a major cause of traffic congestion along the expressway. Lack of development, utilisation and patronage of rail, sea and pipeline transport modes increased traffic congestion along the studied route. Drivers indiscipline, aggressive driving and lack of patience that resulted in some road traffic incidents was established as another source of infraction that contributed to congestion along the already stressed road.

On the use of information in enhancing transport safety and wellbeing, 97% of the respondents confirmed to have never heard of any of the radio stations discussing or educating audience on traffic induced health risks and challenges. In the same vain 73% of respondents using public transport claimed that public vehicle operators hardly tuned to public radio stations and the special traffic radio FM96.1 therefore, they are used to zero reportage of traffic situation while on-board the public vehicles. While 75% professed listening to only religion messages and music in overcoming burdens during trips associated with traffic congestion via this radio stations. This implies that there is lack of traffic congestion information awareness. However, 25% of private vehicle users were aware of traffic radio and utilised it in knowing how the traffic situation may impact on their trips during commuting. Findings, also revealed that over 80% of respondents that resides and work at Apapa confirmed loss of minimum of twenty (20) hours per week to traffic congestion, 75% claimed they are short of adequate rest and sleep that is greatly affecting their health. 100% of the health management officers working in medical facilities along the route reported an increase in reported cases of respiratory challenges, nausea problem, and asthma with ailment linked to environmental induced source, possibly from traffic exhausts and fumes. Also, 57% of respondents confirmed increase in visits to medical facilities with higher spending on drugs and medication within the last four years due to constant traffic induced fatigue, inadequate sleep, poor diet and pollution. 70% of the drivers reported increased anger and most time loss of temperament on other drivers and road users due to the state of the roads and pressure from driving during traffic congestion. In like

manner, 62% claimed they have missed one or more appointment that might have increased their opportunities for income generation. Findings also showed that the respondents reported increase in cost of fuelling, maintenance and expenditure on vehicles in the process of moving from one point to another. Majority of the drivers confirmed the negative effect of traffic congestion on their movement, safety and wellbeing as well as that of road users and residents along the route including the conditions of their vehicles. Motorcyclists and tricycle operators reported growing fear of insecurity, unsafe trip and involvement in some near-miss incidents and some degree of road traffic incidents, therefore, making safety and wellbeing their major concern. In support of the findings, Popoola et al. (2013) advised that road users should be enlightened on traffic education and adequate training should be provided for traffic management personnel.

#### **IV. Conclusion And Recommendation**

This study investigated the effect of traffic congestion and health information on road users' safety and wellbeing in Apapa-Badagry Expressway, Lagos Nigeria. The research was able to establish the existence of negative consequence of traffic congestion on road user's safety and wellbeing. Hence the importance of health information management on traffic management and road users' wellbeing as a critical measure for addressing this menace is of necessity. From the findings, majority of the respondents agreed that adequate information covering traffic induced health challenges will surely assist commuters in planning against traffic induced health menace and aids in enhancing national productivity. It is also obvious that good and proper road channel can ease traffic congestion thus, commuter can travel on the road in comfort. It is also of importance that commuters are adequately informed because, timely, relevant, adequate, accurate and concise information can help improve health, safety and wellbeing of the populace. Finally, ease of traffic congestion and adequate channel for disseminating health information to road users' place is germane to the growth of any society. Based on the findings of this study, the following recommendations are put forward:

1. Government are encourage to develop long range implementable multi-modal transportation policy and plan that will address the traffic congestion challenge along Apapa-Badagry expressway and all other national roads with similar traffic experience.
2. Stakeholders should improve on the use of multi-dimensional information propagation media, especially radio and television medium in disseminating traffic related information to the commuters.
3. Information professionals must be involved in the provision of timely health information on risk of traffic congestion by working hand-in-hand with transportation agencies, operators, commuters as well as safety and health risk management professionals.
4. Traffic and emergency management officers must be ready and duly equipped with necessary resources in enhancing actions that may ease road traffic congestion within the study area and across the nation.
5. Health management officer must develop strategies for educating drivers and commuters on numerous traffic safety and health risks.
6. There is need for stakeholders to explore research opportunities on the extent of some specific traffic induced pollutions on health of traffic operators, commuters and those that may resides within the study environment.

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