Awareness and Adoption of Road Traffic Accident (RTA) Preventive Measures among Commercial Tri-Cyclists in Owerri Municipal Council, Imo State

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Abstract

This study examined the awareness and adoption of road traffic accident (RTA) preventive measures among commercial tri-cyclists in Owerri Municipal Council. A descriptive cross-sectional survey research design was adopted for the study. The population of the study was 3300 and it comprised of all tri-cyclist in owerri municipal council. However, The sample for the study comprised 350 respondents. Stratified sampling technique was adopted for the study. The instrument used for data collection was Awareness and Adoption of Road Traffic Accident Preventive Measures Questionnaire (AARTAPMQ) with a reliability alpha coefficient of 0.83 and was analyzed using both descriptive statistics of frequency counts and percentages to analyzed the demographic data as well as inferential statistics of chi-square to test the null hypotheses at 0.05 level of significance. The results showed that, more than half 55.2% f the respondents were aware of road traffic accident preventive measures while 76 per cent did not adopt RTA preventive measures. Furthermore, the result showed that there were significant differences in awareness and adoption of RTA preventive measures in a sample of commercial Tri-cyclists in Owerri Municipal Council, based on level of education and work experience. It was concluded that more than half of respondents were aware of road traffic accident preventive measures Findings suggested that road inspection team be established to be plying the roads or CCTV cameras planted at strategic points on the roads to catch violators of traffic rules and punish them accordingly.

Keywords: Road traffic accident, Awareness, Preventive measures

Introduction

Road traffic accidents (RTA) have remained a major cause of injuries and of course deaths in the world. They are considered as one of the important public health problems around the world. According to the Global Status Report on Road Safety (2009), over 1.2 million people die each year on the roads worldwide and between 20 and 50 million suffer non-fatal injuries. Currently, road traffic accidents are the 9th leading cause of death and are predicted to become the 5th leading cause of death by the year 2020.Global Status Report on Road Safety (2009). The

magnitude of road accidents and fatalities has assumed an alarming rate. This is evident from the fact that globally, in every hour there are about 56 road traffic accidents (RTA), that is, about one accident every minute. Similarly, every hour more than fourteen deaths occur due to road accidents, this means that, in every four minutes, a death occurs (Chakraborty, Gupta, & Bhatnagar, 2013).

Road traffic accidents occur all over the world. However, according to World Health Organization, (WHO, 2013), the incidence is more in developing countries than developed countries. Yearly, about 1.24 million people die as a result of road traffic accidents. Injuries from road traffic are the leading cause of death among young people aged 15-29years. Ninety one percent (91%) of the world's fatalities on the road occur in low-income and middle-income countries, even though these countries have approximately half of the world's vehicle. Half of those dying on the world's road are vulnerable road users, such as; pedestrians, cyclists, tri-cyclists and motorcyclists. Without action, road traffic accidents are predicted to result in the deaths of around 1.9 million people annually by 2020 (WHO, 2013). Only twenty-eight countries representing 416 million people (7% of the world's population) have adequate laws that address all five risk factors for RTA which include: speed, drunk-driving, helmets, seat belt and child restraints. Kostyniuk, Streff, and Zakrajsek (2002) reported that apart from other causes, the following human factors were responsible for accidents: failing to keep lane, failing to yield right of way, excessive speed, inattentiveness, car following too close to vehicle in front, as well as use of drugs and alcohol.

In developed countries, aside from punitive measures and legal concomitance, schools have greatly contributed to reorientation, leading to the wholesome development of individuals (Orosanyin, 2004). Wholesomely developed individuals are likely to obey traffic laws and observe safety regulations on the roads. In Nigeria, hardly a day goes by without an accidents occurring as observed of the roads. This has increased the incidence of morbidity and mortality rates as well as financial cost to both the society and individuals involved (Orosanyin, 2004)

In Imo State, especially in Owerri Municipal, there are so many tri-cyclists, and accidents are reported daily among them. A lot of researches have been done regarding awareness of road traffic accident prevention among other drivers. Therefore, the need to determine the awareness and adoption of road traffic accident preventive measures in a sample of commercial tri-cyclists

in Owerri Municipal Council, Imo State, cannot be over-emphasized. Therefore, based on inherent problems of RTAs in Owerri Municipal, the study aimed to investigate awareness and adoption of RTAs, preventive measures in Owerri municipal council, Imo state.

Awareness in general means, knowledgeable being conscious; cognizant, informed alert. K Abdul, 2012 stated that Awareness is the state or ability to perceive, to feel, or to be conscious of events, objects, or sensory patterns. In this level of consciousness, the possessor of any knowledge must contain awareness but mere awareness does not contain any type of knowledge. More broadly, it is the state or quality of being aware of something. (K Abdul, 2012).Therefore, awareness in this context implies being familiar with road traffic accidents causes and its prevention strategies in Owerri municipal council, Imo State.

Road traffic accidents occurs when a vehicle collides with another vehicle, pedestrian, animal, road debris, or other stationary obstruction, such as a tree or utility pole (Road Transport Agency, 2013). Road traffic accidents cause considerable economic losses to individuals, their families, and to nations as a whole. These losses arise from the cost of treatment as well as lost productivity for those killed or disabled by road accidents and for family members who need to take time off work or school to care for the injured (WHO, 2018). Worldwide, road traffic accidents lead to death and disability as well as financial cost to the society. However, this occurs when preventive measures are neglected.

Preventive Health Measures encompass a variety of interventions that can be undertaken to prevent or delay the occurrence of disease or reduce further transmission or exposure to disease. Preventive health measures are an important part of health promotion efforts and many have been recognized as a cost-effective way to identify and treat potential health problems before they develop or worsen. (Sunil Hariram Pal (2021). Contextually, it means to adopt means or precautionary measures aimed towards ensuring the avoidance of unintended road accidents especially amongst tri-cyclists.

Adoption refers to a personal act, a legal process, or a social service (Cole & Donely, 1990). It is the process of accepting to practice something new or different. It involves an official acceptance or approval to a new process. Contextually, it implies familiarizing and maintaining precautionary rules and principles geared towards accident prevention. An example includes: a

tri-cyclist adopting new measures to ensure hitch free movement with little or no worries of road accidents.

Some socio-demographic variables which are education level and work experience were used to carry out this study. These variables are considered necessary because it further explains the study more appropriately.

Srivastava, Gaikwad, Pagdal, and Bhattacharya (2019) examined knowledge and practice toward road safety protocol and the basic life support among medical students in India. The study was a cross-sectional survey study. Participants were undergraduate students whose ages ranged between 19-22 years drawn using purposive sampling from their 5th and 7th year of study. Data were collected using a pre-tested questionnaire constructed by the researchers. Frequency analysis of data was done, and Chi-square test was applied for the categorical variables using Statistical Package for the Social Sciences (SPSS) version 22. It was found that nearly half (48.67%) participants wore a helmet occasionally while riding. 9.43% of students admitted that they only carry it with for avoiding traffic police, nearly one-third (35.84%) of participants were fined in the past for traffic rule violations. The study concluded that since Young drivers are a vulnerable age group of drivers worldwide, this poor knowledge may be due to the lack of induction training about basic life support. This study intends to help in discovering the education level of road traffic users in Owerri and to help in aligning them with the right knowledge on proper behaviours during driving.

Hu, Bao, Wu, and Wu (2020) examined the relationship between driving experience and road traffic accident awareness and prevention in China. The study was a systematic review of The China In-Depth Accident Study (CIDAS) project was launched in 2011. The study utilized grey cluster evaluation model in analyzing the data. In this study, the drivers were divided into six groups based on their driving experience: 3 years and below, 4 to 5 years, 6 to 10 years, 11 to 15 years, 16 to 20 years, and 20 years and above. This is to ascertain if years of driving experience have affected positively road traffic accidents positively in owerri municipal council. The results showed that drivers with 6–10 years of driving experience have the highest risk to accidents, followed by drivers with 4-5 years of driving experience; and the driving style is also highly correlated with accident risk tendency.

Materials and Methods

A descriptive cross-sectional survey research design was used for this study. The population for this study was 3300 and it comprised all commercial Tri-cyclists in Owerri Municipal Council, Imo State (Licensing Office, Imo State 2017). A sample of 330(10%) commercial tri-cyclists that ply various roads in Owerri Municipal Council, Imo State was used for the study. Stratified random sampling technique was adopted for the study. This is so because it involved the grouping of some commercial tri-cyclists in Owerri municipal council, which shared the same attributes. Owerri Municipal Council was stratified into five strata which include: Umuororonjo, Amawom Umuoyima, Umuonyeche, and Umuodu, and each of the stratum was regarded as a stratum from where the respondents were purposively selected based on the judgment of the researcher as to who will provide the best information on awareness of RTAs and each of them had the same sampling fraction which means the sampling was proportionate. To get a total of 330 respondents, the researchers and their research assistants administered 350 copies of questionnaires to the respondents. This is to ensure that the number of questionnaires not returned and also the ones not correctly filled won't be so much so as not to affect the result of the findings negatively. Out of the questionnaire administered, 300(85.7%) were retrieved.

The instrument used for the study was a structured questionnaire titled "Awareness and Adoption of road Traffic Accident Preventive Measures Questionnaire (AARTAPMQ)". The questionnaire was in three sections. Section A dealt on the demographic characteristics of the respondents (educational level and work experience). Section B dealt with the information concerning awareness of RTA preventive measures while Section C sought information on adoption of RTA preventive measures. The questions were in closed-ended form in line with the modified likert scale techniques of summated ratings. The responses were on a four-point likert-type scale of SA and A to depict Agree and D and SD to depict Disagree representing aware, unaware, adopt and do not adopt respectively.

The questionnaire was validated by three experts in the Department of Physical and Health Education, Alvan Ikoku Federal college of Education, Owerri, Imo State. The corrected version of the questionnaire was administered to 20 Commercial Tri-cyclists in Owerri West Local Government Area of Imo State using test re-test method at a two-week interval. The data

collected was tested for internal consistency using chronback alpha, and analyzed to determine the reliability of the co-efficient of 0.85 and 0.81 were obtained for sections B and C part of the instrument respectively. However, the instrument was adjudged reliable and was used for the study.

The researchers and their research assistants administered 350 questionnaires on face to face basis during the monthly meeting of the Tricyclists and this exercise took the researchers a period of three months. However, 300 copies representing (85.7%) were retrieved. The completed copies of the questionnaire were coded and analysed using both descriptive statistics of frequency counts and percentages to analyse the demographic data as well as inferential statistics of chi-square to test the null hypotheses at 0.05 level of significance.

Results

Table 1: Proportion of Commercial Tri-cyclists Aware of Road Traffic Accident Preventive Measures (n=330)

S/N	Items	Aware n(%)	Unaware n(%)
1.	Maintaining minimum distance between two cars while driving	149(45.2%)	181(54.8%)
2.	Not drinking alcohol before driving	179(54.2%)	151(45.8%)
3.	Regular maintenance of vehicle	180(54.5%)	150(45.5%)
4.	Regular use of horn	184(55.8%)	146(44.2%)
5.	Controlling speed while descending	137(41.5%)	193(58.5%)
6.	Use of hazard light	211(63.9%)	119(36.1%)
7.	Obeying road signs	195(59.1%)	135(40.9%)
8.	Avoid calling or receiving phone calls while Driving	124(37.6%)	206(62.4.5%)
9.	Avoid dull headlight	229(69.4%)	101(30.6%)

10.	Driving within the recommended speed limit	218(66.1%)	112(33.9%)
	Overall	**223(67.6)%**	**107(32.4%)**

Table 1 shows that overall, 67.6 per cent of commercial Tri-cyclists were aware of RTA Preventive measures while 32.4 per cent of them were unaware. This implies that more than half of commercial tri-cyclists are aware of RTA Preventive measures.

Table 2: Awareness of Road Traffic Accident Preventive Measures among Commercial Tri-cyclists (n=330)

S/N	Level of Awareness	n(%)
1.	Low awareness(<4)	83(25.2)
2.	Moderate awareness (4-6)	120(36.4)
3.	High awareness (7-10)	127(38.5)

Table 2 shows that there is high (38.5) awareness of RTA preventive measures among commercial Tri-cyclists.

Table 3: Proportion of Commercial Tri-cyclists that adopt RTA Preventive Measures (n=330)

S/N	Items	Adopt n(%)	Do not adopt n(%)
1.	Driving after consumption of alcohol?	226(68.5)	104(31.5)
2.	Exceeding speed limit?	215(65.2)	115(34.8)
3.	Playing music while driving?	201(60.9)	129(39.1)
4.	Use of mobile phone while driving?	188(57.0)	142(43.0)
5.	Over taking frequently?	217(65.8)	113(34.2)
6.	Less caution of road traffic signs?	217(65.8)	113(34.2)
	Overall	**245(74.2)**	**85(25.8)**

Table 3 shows that overall, 74.2 per cent of commercial Tri-cyclists indicated not adopting RTA preventive measures while 25.8 per cent indicated adopting RTA preventive measures. This

implies that more than two-third of commercial Tri-cyclists do not adopt RTA preventive measures; and 25.8 per cent adopts RTA preventive measures.

Table 4: Chi-square Test on Awareness of RTA Preventive Measures in a sample of Commercial Tri-cyclists based on Level of Education

Variable	N	Yes O(E)	No O(E)	X^2	Df	P-value
No Formal education		8(8.8)	5(4.2)	20.02	3	.000
Primary		45(58.8)	42(28.2)			
Secondary		87(87.2)	42(41.8)			
Tertiary		83(68.3)	18(32.7)			

Table 4 shows the chi-square value with the corresponding p-value of hypothesis of no significant difference on awareness of RTA Preventive measures amongst commercial tri-cyclists based on Education level. (X^2 = 20.02, df = 3, p <.001). The Hypothesis is rejected indicating that there is significant difference on Awareness of RTA preventive measures amongst commercial tri-cyclists based on Education level.

Table 5: Chi-square Test on Adoption of RTA Preventive Measures in a sample of Commercial Tri-cyclists based on Level of Education

Variable	N	Yes O(E)	No O(E)	X^2	Df	p-value
No Formal education		9(9.7)	4(3.3)	.443	3	.931
Primary		64(64.6)	23(22.4)			
Secondary		98(95.8)	31(33.2)			
Tertiary		74(75.0)	27(26.0)			

Table 5 shows the chi-square value with the corresponding p-value of hypothesis of significant difference on the adoption of RTA Preventive measures amongst commercial tri-cyclists based on Education level. (X^2 =.443, df = 3, p <.931). The Hypothesis is accepted indicating that there

is no significant difference on Adoption of RTA preventive measures amongst commercial tri-cyclists based on Education level.

Table 6: Chi-square Test on Awareness of RTA Preventive Measures in a sample of Commercial Tri-cyclists based on Level of Work Experience

		Yes	No			
Variable	**N**	**O(E)**	**O(E)**	**X^2**	**Df**	**p-value**
<3years		51(48.7)	21(23.3)	3.94	2	.139
3-5years		101(95.3)	40(45.7)			
6+years		71(79.1)	46(37.9)			
Total		**223(223.0)**	**107(107.0)**			

Table 6 shows the chi-square value with the corresponding p-value of hypothesis of significant difference on the awareness of RTA Preventive measures amongst commercial tri-cyclists based on Work experience. (X^2 =3.94, df = 2, p <.139). The Hypothesis is accepted indicating that there is no significant difference on Awareness of RTA preventive measures amongst commercial tri-cyclists based on Work Experience.

Table 7: Chi-square Test on Adoption of RTA Preventive Measures in a sample of Commercial Tri-cyclists based on Level of Work experience

		Yes	No			
Variable	**N**	**O(E)**	**O(E)**	**X^2**	**Df**	**p-value**
<3years		57(53.5)	15(18.5)	2.31	2	.314
3-5years		99(104.7)	42(36.3)			
6+years		89(86.9)	28(30.1)			
Total		**85(85.0)**	**245(245.0)**			

Table 7 shows the chi-square value with the corresponding p-value of hypothesis of significant difference on the adoption of rta preventive measures amongst commercial tri-cyclists based on work experience. (x^2 =2.31, df = 2, p <.314). The hypothesis is accepted indicating that there is no significant difference on adoption of rta preventive measures amongst commercial tri-cyclists based on work experience.

Discussion

Result in table 1 showed that greater proportion of the respondents were aware of road traffic accident preventive measures while an appreciable number of the respondents were unaware of road traffic accident preventive measures. The number of tri-cyclists who are aware is encouraging but however; the proportion of operators of tri-cyclist who are unaware is disturbing because they can constitute threat to road traffic accident preventive measures being observed by other road users. Downing (2014) observed that, ignorance of road traffic accident preventive measures can be very dangerous to safety on our roads. This is because it jeopardizes the accident preventive measures observed by other road users.

Result in table 2 showed that greater proportions of the respondents are aware of RTA preventive measures among commercial tri-cyclists. This implies that there will be a reduced number of road accidents among commercial tri-cyclists since they are aware of the preventive measures. This supports Sarin and Mittal (2009) observation that non-observant of traffic rules and regulations are the major cause of traffic accidents. Again, this showed that being aware of road traffic accident preventive measure among tri-cyclists does not necessary mean that they practice it. Therefore, the need to practice it becomes important.

Results in table 3 showed a high significant difference in non-adoption of road accident preventive measures among commercial tri-cyclists. This is not surprising and therefore was expected as most commercial tri-cyclists lack the basic training needed to ply the roads. Sayer, Palmer and Guy (2007) pointed out that literacy is one of the factors that help people in accident prevention because it helps to enlighten individuals in understanding the various road signs in order to prevent accident occurrences. So the needs to enforce the adoption of the preventive measures are needed.

Result in table 4 showed no significant difference on the awareness of road traffic accidents preventive measures among commercial tri-cyclists according to level of education. This is also expected because literacy about accident preventive measures makes individuals to do everything possible to prevent accident. According to Kulanthayan (2000) being educated predisposes people to obey traffic rules and regulation although there are some isolated cases of violation of such rules even by educated individuals.

Result in table 5 showed a significant difference in adoption of road traffic accident preventive measures among commercial tri-cyclists in Owerri Municipal Council based on education level. This result is equally expected because been educated helps in a huge way to avoid accidents. Education helps to make drivers more responsible, tactical and disciplined while driving and it has helped to prevent traffic accidents. According to Kulanthayan (2000) being educated predisposes people to obey traffic rules and regulation although there are some isolated cases of violation of such rules even by educated individuals.

Result in table 6 revealed that there was a significant difference in practice of road traffic accident preventive measures among tri-cyclists in Owerri Municipal Council, Imo State according to work experience. This is expected because appreciable numbers of tri-cyclists are aware of some of the rules guiding the use of road in order to prevent accident. Even when they are aware such rules are consciously violated. This is in line with the views of Chakrabarty and Singh (2010) who observe that, the number of years drivers have spent on driving is enough to adequately expose them to all the preventive measures they need to constantly prevent accidents on the road

Results in table 7 revealed there was a significant difference in the adoption of road traffic accidents preventive measures amongst commercial tri-cyclists in Owerri Municipal Council, Imo State according to work experience. This is so because experience is always the best teacher. Those who have operated tri-cyclist for a longer period are assumed to be aware of road accident preventive measures because of long period of exposure to such preventive measures while driving. This is in line with the views of Chakrabarty and Singh (2010) who observe that, the number of years drivers have spent on driving is enough to adequately expose them to all the preventive measures they need to constantly prevent accidents on the road.

Conclusion

The findings of the study have shown that more than half of respondents were aware of road traffic accident preventive measures. The proportion of those who are unaware of road traffic accident preventive measures is high enough to constitute hazard to other road users. More than two-thirds of the respondents did not adopt road traffic accident preventive measures while only lesser number of the respondents did. This is worrisome because this can lead to high accident rate on the road.

There were significant differences in awareness and adoption of RTA preventive measures according to level of education and work experience in a sample of commercial Tri-cyclists in Owerri Municipal Council, Imo State. However, the federal road safety commission should embark on sensitization programs and ensure strict compliance to rules and preventive measures by punishing violators. Also, the government should ensure that before licenses are issued, test on road accident preventive measures is conducted on potential tri-cyclists in order to reduce the carnage on our roads. Road inspection team should be established to be plying the roads or closed circuit television (CCTV) cameras planted at strategic points on the roads to catch violators of traffic rules and punish them accordingly. This will help to reduce rod traffic accidents.

References

Abdul Gafoor K. (2012). Considerations in the Measurement of Awareness. Kerala, India: Emerging Trends in Education.

Chakraborty, N. & Singh, H. (2010). Driver observance related to their obedience of traffic rules and their need for traffic education. *Paper published and Awarded in all India Scientific and Technical Paper Writing Competition.*

Chakraborty, N., Gupta, K., & Bhatnagar, A. (2013).A survey on awareness of traffic safety among drivers in Delhi, Indian. *The Standard International Journal.*1, 106-110.

Clark D.W, & MacMahon B. (1967). Preventive medicine. Boston, MA: Little, Brown & Co.

Cole. E. & Donley K. (1990). History, values and placement policy issues. In D. Brodzinsky & M. Schechter(Eds). The psychology of adoption 273-294. *New York: Oxford University Press*

Downing, A. (2014). Road accident in Pakistan and the need for improvements in driver training and traffic law enforcement. *Summer Annual Meeting.* University of SusseProc of Seminar H. London: PTRC Education and Research Services.

Global Status Report on Road Safety (2009). Accessed from: http://www.who.Int/violence-injury- prevention /road_ safety_status/2009/en/.

Hu, L., Bao, X., Wu, H., & Wu, W. (2020). A Study on Correlation of Traffic Accident Tendency with Driver Characters Using In-Depth Traffic Accident Data. *Journal of Advanced Transportation, 2020(9084245),* 1-7.

Kostyniuk, L.P., Streff, F.M. &Zakrajsek, J.S. (2002).Identifying unsafe actions that lead to fatal car-zxtruck crashes.*AAA foundation for traffic safety;* 2 (3), 56-63.

Kulanthayan, S. (2000).Compliance of proper safety helmet usage in motorcyclists. *Med J. Malaysia,* 55, pp.40-44.

Orosanyin, G.T. (2004). Road accident data problems in Nigeria.An agenda for reform.*Indian Journal of Transport Management*, 28,pp. 478-504.

Peden, M. Scurfield, R., Sleet, D., Mohan, A., Syder & Jarawan (2004).*World report on road traffic injury prevention*. Geneva: World Health Organization.

Road traffic Accident. [2013]. Http://en.wikipedia.org/wiki/road_trrafic_accident.

Sarin, S.M. & Mittal, S.M. (2009). "Traffic accident in Indian" *Internal Report Published at CRRI.*

Sayer, I.A. Palmer, G. & Guy, I. (2007). *Improving road safety education in developing countries*. Ghana: Transport Research Laboratory.

Srivastava, A., Gaikwad, S., Pagdal, P. & Bhattacharya, S. (2019). A study on awareness of road traffic accidents and their basic management among medical students of Government Medical College, Maharashtra, India. *CHRISMED Journal of Health and Research*, 6,216-21

Sunil Hariram Pal (2021). General Measures & Prevention of Poisoning in Emergency Medicine. Journal of Anaesthesiology and Critical Care.

WHO (2013). Global plan for the decade of action for road safety 2011-2020.*Geneva: WHO Publication.*

WHO (2018). Global status report on road safety 2018 information on road safety situation globally. An Overview of the road safety situation globally.