

Original Research Article

Knowledge, attitude and compliance with safety protective measures and devices among commercial motorcyclists in Sokoto metropolis, Northwestern Nigeria

Abstract

Background. Motorcycle accidents occur frequently in this part of the world as a result of interface between the agent, the host and its environment resulting in fatal consequences. The objective of this study was to assess the Knowledge, attitude and compliance with road safety protective devices among commercial motorcyclists in Sokoto metropolis, Sokoto.

Methods: A cross-sectional descriptive study was carried out among 307 commercial motorcyclists randomly selected (from 40,000 commercial motorcyclist in sokoto metropolis registered with Amalgamated Commercial Motorcycle Riders Association of Nigeria) using multistage sampling technique. A pre-tested 99 item, structured interviewer-administered questionnaire was used as the tool for data collection. Data was analyzed using SPSS version 20.

Results: Majority of respondents (67%) had poor overall knowledge of road safety measures, 60.9% could not identify earplugs, 77.9% could not correctly identify zebra crossing, 87.9% could not correctly identify overtake/do not overtake road sign correctly. Less than a third (30.6%) of respondents had positive attitude towards use of road safety protective devices; with 47.2% of respondents perceiving use of safety devices as not important and 19.5% felt adhering to safety protective devices can't prevent injuries from RTA. Majority (99.7%) of the respondents had inappropriate safety measure practice, with most of the respondents reporting never having worn a reflective jacket, 93% of them ride fast to beat traffic light, 79% observe regulated speed limit, 32% do not always signal before turning a corner.

Conclusion: Most of the respondents had poor overall knowledge of road safety measures, less than a third had positive attitude towards use of road safety measures and majority had inappropriate safety measure practice.

Recommendation: Ensuring formal training, vigorous enlightenment campaigns and enforcement on the use of safety protective devices by the relevant key authorities will help improve the. Knowledge, attitude and practices of commercial motorcyclist.

Key words: *Attitude, commercial motorcyclists, compliance, knowledge, safety protective device*

INTRODUCTION: Road traffic accidents occur when a vehicle collides with another vehicle, pedestrian, animal, road debris, or other stationary obstruction, such as a tree or utility pole.¹ It is an accident which takes place on the road between two or more object, one of which must be any kind of moving vehicle,² Worldwide, road traffic accidents lead to death and disability as well as financial cost to both societies and the individual involved. There is generally increasing incidence, morbidity and mortality rates of road traffic accidents. People are injured in road accidents everyday more so in developing countries like Nigeria. The problem is that the enormity of the problem is not appreciated and enough preventive measures are not taken.¹ About 1.24 million people die each year globally as a result of road traffic crashes.³ Second leading cause of death globally among young people 5-29years.⁴ And third among 30-44years.⁴ most recent safety data in Nigeria shows that, In 2012, there were 13 262 reported road crashes, which caused the deaths of 6 092 persons, 1% more than in 2011, in 2013, there was a 2% increase in road traffic crashes, a 2% increase in injuries and a 6% increase in fatalities when compared with the 2012.⁵ In Sokoto state about 1,468 cases of road traffic accidents were registered by FRSC Sokoto command between 2011- 2013,⁵ with 95 cases of fatality at the accident spot. An **okada** (also: *Kabu kabu, Achaba, Going, Inaga*) is a commercial motorcycle used as a vehicle for hire in Nigeria, it constituted a significant proportion of modal choice of commuters in many cities since the late 80's.⁶ It was reported that in 1995, an estimated 45,000 motorcycles were in use for public transportation in Lagos metropolis alone.⁶ In 2004 and 2005, 52% of all motor vehicle license plates were for motorcycles, and about 2% of the 2004

57 motorcycle license plates were produced for commercial purposes.⁷In Sokoto metropolis,
58 motorcycle accidents constituted 40% of road traffic accidents in 2009.⁸

59 Road traffic death and injuries can be prevented.⁴ the key to successful prevention lies in the
60 commitment of all relevant sectors, public and private- health, transport, education, finance,
61 police, legislator, manufacturers, foundation and the media. This study is done aim to determine
62 Knowledge, attitude and compliance with road safety measures among commercial motorcyclists
63 in Sokoto metropolis, Sokoto, North-Western Nigeria. Motorcycle injuries have not received the
64 attention they deserve partly because of lack of local data, and the public policy responses to this
65 epidemic have been muted at regional and national level.

66 **MATERIAL AND METHOD:**

67 Sokoto is situated in the North- Western part of Nigeria. The State was created from Old North-
68 western in 1976; it assumed its present form after the creation of Kebbi State (in 1991) and
69 Zamfara State (in 1996) It is bounded by Zamfara State to the South, Kebbi state to the west,
70 Katsina State to the east and Niger Republic to the North. The State has 23 Local Government
71 with Sokoto Metropolis being the capital, and it comprises the Sokoto North, Sokoto South and
72 some part of Dange shuni, kware and Wamako Local Government Area. The metropolis is the
73 seat of Government and popularly Called the seat of caliphate, and it's the capital of Sokoto
74 state, it lies between longitudes 05 11 to 13 03 east, Latitude 13 00 North and covers area of 60,
75 33 square km. The average projected population of the state for 2015 is 4,886.888 (UNFPA,
76 2015) with the metropolitan having (2,425,969)Sokoto covers a total Land area of 26,595,000m²
77 thus constituting about 59% of the country total land mass. The state has an average annual
78 temperature of 28.3° C (82.9° F), it is one of the hottest cities in the country. The annual rainfall
79 ranges between 500mm – 1,300mm and occurs between May and September with a peak in

August, the dry season usually spans from November to March during which there is harmattan period that is characterized by the cold dusty wind between the months of November to February. The hot periods starts from March and ends around May during which the recorded environmental temperatures are in the range of 38°C – 42°C with an average humidity of less than 20%.The people are mainly Hausa/Fulani; others are Zabarmawa, and other various tribes from different part of the country. Islam is the predominant religion. The vegetation is that of Savannah zone with grassland suitable for the cultivation of grains and animal husbandry. The people are mainly farmers. However some engage in art work like shoe making, tanning, Black-Smiting and other various kind of trading. There are four Motor Parks within Sokoto metropolis with Central motor Park being the largest others are Kara Motor park, Illela garage Motor park and Kalambaina Motor Park, Kwannawa, Round mai ruwa, Hubbare and Dandima garage. The commonest mode of transportation in Sokoto metropolis was commercial motorcycle they have Association called (ACOMORAN) that is” Amalgamated Commercial Motorcycle Riders Association of Nigeria” which is headed by a Chairman and the secretary, with different units headed by the unit chairman, they have a total numbers of about 60,000commercial motorcycle riders in the state (Acomoran 2014) And those in the metropolis constitutes about 40,000 and about 15,000 are registered with the association and operate daily register in their unit in order to carry out their services, the units are categories below.

For Sokoto North there are 12 units and had 2556 registered riders as the time of this study.

For Sokoto south there are 24 units these constitutes about 8000 riders but only about 3048 had registered with the association as the time of this study.

For Dange Shuni there are 18 units with 2,548 Riders registered with the association as the time of this study

For Wamako LGA there are the following 36 units these constitute about 6000 Riders with about 4,233 registered one, and kware has about 1200 registered members as the time of this study.

A cross sectional descriptive study design was employed to determine the knowledge, attitude and compliance with road safety measures among commercial motorcyclists. The study population consisted of registered commercial motorcyclists that operate mainly in metropolis and have spent at least 6 months in commercial motorcycling business. All persons that have not met these criteria were excluded from participating in the study.

A multistage sampling technique was adopted for the study.

Stage I: This involved the selection of units by simple random technique using the balloting method to select 25% of the units in each of the metropolitan local government areas. (Sokoto North 12, Sokoto South 24, Wamako 36, Dange Shuni 18, and Kware 4) that is Three, Six, Nine, Five, and one units respectively, were enrolled into the study (sample frame).

Stage II: Therefore proportional allocation was used to select the study respondents (sample unit) from the sample frame. Thereafter Systematic sampling was used to select the study subject,

A pre-tested structured interviewer administered questionnaire was used to collect the data from 307 commercial motorcyclists who consented, the questionnaire was pretested in a different commercial motorcycle station located in another Local Government Area away from that of the study after translation and back translation to ensure standardization. The data collection took place from the 30th November to 30th of December 2014 and was carried out by the six trained research assistants. The questionnaire consisted of six sections that sought information on: socio-demographic profile of the commercial motorcyclists, knowledge, attitude and compliance with road safety measures, cause and pattern of accident and injuries. Data collected was entered, validated, and analyzed using SPSS software version 20.0. For the descriptive aspect of the analysis, frequency distributions were generated for all categorical variables.

Ethical consideration

Before embarking on the study permission was sought from the Sokoto state ministry of health ethical review committee. Permission was also obtained from the chairman of amalgamated commercial motorcycle riders association of Nigeria (ACOMARAN) equally; each respondent was briefed and adequately informed on the purpose of the study, after which their consent was sought. The respondents were all assured of their privacy and confidentiality on whatever information they would give.

Limitation of the Study

None response and excessive demand of incentives made some targeted riders non accessible for the study.

RESULTS

Socio-demographic characteristics

A total of 307 respondents were studied and majority of them (72.4%) were within the age range of 20-29 years. All the respondents interviewed were males with 77.2% of them reported Hausa as their ethnic group and 93.0% of them indicated Islam as their religion. In terms of educational background, 41.0% of the respondents attended secondary school while 24.1% and 18.6% attended Quranic and primary schools. Over half (54.1%) of the respondents are married. Majority (79.8%) of the respondents did not receive any form of formal training before commencement of their business. Detail of the socio-demographic characteristics of the respondents is summarized in table 1.

161 Table 1: Socio-demographic profile of respondents

Variables	n (%)
Age (Years)	
10-19	22 (7.1)
20-29	153 (49.0)
30-39	102 (32.7)
40-49	27 (8.7)
≥50	3 (1.0)
Mean Age= 28.6, ±7.03	
Sex	
Male	307 (100)
Female	0 (0)
Marital status	
Single	118 (38.4)
Married	166 (54.1)
Separated	13 (4.2)
Divorced	10 (3.3)
Religion	
Islam	293 (95.4)
Christianity	14 (4.6)
Ethnicity	
Hausa	237 (77.2)
Fulani	46 (15)
Yoruba	9 (2.9)
Igbo	6 (2.0)
Others	9 (2.9)
Education	
Primary	57 (18.6)
Secondary	126 (41.0)
Tertiary	47 (15.3)
Qur'an	74 (24.1)
Others	3 (0.9)
Motorcycle Riding Training School attendance	
Yes	62 (20.2)
No	245 (79.8)

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Knowledge on safety protective devices

A significant proportion of the respondents (59.0%) are aware of safety protective devices, however, majority of them (67.0%) have poor knowledge of what a safety protective device is. The only safety protective devices known by the respondents were; Crash helmet, eye goggles, and boots constituting 81.4%, 80.1% and 70.0% respectively.

Variable	n (%)
Good Knowledge ($\geq 50\%$)	101 (33.0)
Poor Knowledge ($< 50\%$)	206 (67.0)
Mean Knowledge score 44.13 ± 13.97	

Variable	Correct n (%)	In correct (%) n (%)
Use of helmet is a protective measure	250 (81.4)	57 (18.6)
Use of eye goggles is a protective measure	246 (80.1)	61 (19.9)
Use of boots is a protective measure	215 (70.0)	92 (30)
Use of gloves is a protective measure	173 (56.4)	134 (43.6)
Use of reflective jacket is a protective measure	145 (47.2)	162 (52.3)
Use of ear plugs is a protective measure	122 (39.7)	185 (60.3)
Use of long pant is a protective measure	120 (39)	187 (60.9)

Attitude toward safety protective devices

In terms of willingness to wear safety protective devices, 79.2 % of the respondents are willing to do so, and agreed that adhering to safety measures can prevent injuries from RTA. But 52.8% of the respondents perceived that using safety protective devices is not important and can only be observe in case of meeting authorities on the road. However, overall attitude of the respondents towards safety protective device was poor 69.4%.

Compliance with use of safety protective devices

Majority of the respondents owned eye goggles (41.7%), boots (29.6%) and hand gloves (28.7%). However, almost all of them do not use the items while riding motorcycles. Therefore, in terms of their compliance score it was poor as 99.7%. Compliance with safety protective device was measured during the interview through one-off observation and asking respondents to show the type of safety protective device presently with them.

DISCUSSION

This study investigates the Knowledge, attitude and practice of road safety measures and pattern of accident and injuries among commercial motorcyclist in Sokoto metropolis. All the respondents in this study were males, which is not unexpected as this is a male dominated occupation, this is similar to the finding of,^{9,10,11} the numerous risks associated with motorcycling might explain why there is male preponderance, and it is also not culturally acceptable in the study environment for females to engage in commercial motorcycling but there are no laws forbidding women from using motorcycles in the country.

This study showed that nearly half (49.0%) of the respondents were within the age range of 20-29 years, and a mean age of 28.6 years this is in consonance with findings obtained by,^{9,12} in Ibadan, who found the Age range of their respondents to be 20-29years, the Similarity in the age range for the respondents in the two centers (Zaria and Ibadan) may not be unrelated to the high

level of unemployment among the youths in the country which has forced the youths to take to motorcycles riding as business to earn a living. Majority (74.9%) of the commercial motorcyclist had formal education which is similar to the findings of,⁹ conducted in Zaria where (70%) of their subjects had formal education, however the figure obtained from this study is lower than the one obtained by,^{12,13} in Lagos, and in Ibadan where (91.6%), and (94.2%) had formal education respectively, this differences may be due to higher number of unemployed graduate in the south west region more than north west region of Nigeria. The significance of this finding is that it could enhance better awareness and knowledge of safety practice amongst the motorcyclist. Majority of respondents did not received any formal training before commencement of the business, similar to the findings obtained by.^{13,14} However the findings obtained from this study was higher than the one obtained by¹² in Ibadan, (38%). The lack of formal training is a major risk factor for road traffic accidents by motorcyclist generally. This goes to show that both the passengers and commercial motorcyclists subject themselves to a great risk of motorcycle injury while riding their motorcycle. This underscores the need for enforcement of regulations for people to qualify to drive especially commercially in Nigeria.

This study also revealed that about fifty nine percent of the respondents are aware of road safety measures, which is lower than the figures obtained by,^{9,13} who observed that (88.0%) and (77.0%) of their respondents are aware of road safety measures respectively, The study also showed that while majority of the commercial motorcyclists who were aware of safety protective devices knew that adhering to safety measures can prevent injuries from road traffic accident (79.2%), Their understanding of safety protective devices is only crash helmet, eye goggle, and boots as a protective device, which is similar to findings obtained by,¹³ in Lagos were (80%) of the respondents mentioned helmet as a protective devices but the figure obtained from this study

230 is lower with the one obtained by,⁹ Zaria were (92.7%) mentioned helmet as a protective devices.
 231 The high figure obtained in the Zaria study may not be unrelated to the fact that there was a rule
 232 in Ahmadu Belloh university Zaria during the period of this study that no motorcycles will be
 233 allowed to enter the university without helmet and this must have contributed to the increased
 234 awareness amongst the riders in terms of regular usage of helmet However (80.1%) of the
 235 respondents can correctly identify eye goggles as road safety protective devices. In terms of
 236 knowledge therefore, majority (67.1%) of the commercial motorcyclists had poor knowledge of
 237 road safety protective devices however the figure obtained from this study is lower than the one
 238 obtained by.^{9, 15} This gives an indication that, most motorcyclists do not undergo any form of
 239 formal training where they should have been given the basics or fundamental principles
 240 underlying the road and safety measures. And this is the main reason why prevalence of RTA
 241 was high among the commercial motorcyclist in other countries like India there is good
 242 legislation that control licenses issuing to commercial motorcycle riders before they embark into
 243 the business unlike in Nigeria where people may decide to buy motorcycle at any time and start
 244 business without going through the driving school to acquire basic knowledge and skills.
 245 One's attitude towards another, Object, or idea can be positive or negative or both. According
 246 to,¹⁶ attitude can be seen to be an evaluative reaction to a concept such as road safety measures,
 247 they also noted that, attitudes towards a concept may be mixed and not necessarily be consistent
 248 within the individual. Riding safely is held in high regards among dedicated motorcyclists.
 249 However, the enjoyment of taking risks and the enjoyment of speed, in particular, are higher for
 250 motorcyclists than for car drivers. That notwithstanding, although speed violations are a
 251 significant predictor of at blame accidents, the biggest predictor of crash involvement among

motorcyclists is not attributed to non-deliberate errors but rather than violations of the safety measures,¹⁷

In this study findings on attitude of respondents revealed that about (69.4%) of the respondent had negative attitude to use of protective devices, The figure obtained from this study is high when compared to the one obtained by^{13,18} who found that (32.7%) and (18.7%) had negative attitude respectively. However; the findings are lower than the one obtained by^{9, 17} in Ghana, who found (95.2%) and (80%) respectively. Almost all (99.7%) of the respondents in this study had inappropriate compliance to protective devices, However the figure obtained from this study is higher than the one obtained by,^{9,18,19,20} who found (56.4%), (86.4%), (84.2%), and (67.6%) respectively. The high proportion of respondents with inappropriate practice is comparable to the high figure obtained in similar studies from Ibadan and Ogun State of Nigeria.

CONCLUSION AND RECOMMENDATION

It is evident from the findings of this study that although majority of the commercial motorcyclists defined safety protective devices as items worn for protection most of them do not know other safety protective devices aside helmet, eye goggle and boots. Most of the respondents think using safety wears make rider feels uncomfortable, therefore they can only wear in case of meeting authorities on the roads. In terms of accidents by the commercial motorcyclists, the commonly injured and affected parts were the lower limbs.

Ensuring formal training and vigorous enlightenment campaigns on road traffic regulations should be instituted by the relevant stakeholders in order to reduce the high prevalence of accidents. While strict enforcement on using safety protective devices amongst the commercial motorcyclists by the relevant key authorities is necessary in order to reduce the high prevalence of and severity of injuries during accidents

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