Relationship between use of mobile phone and road traffic accident amongst motorists in Zaria

***Olubiyi SK.[1], Jibril UN.[2], Hauwa UG.[3], Balarabe F.[4]**

Abstract

Objective: Car telephone use has increased against the background of rapid escalation in general mobile phone services and use. The study was designed to determine the relationship between the use of mobile phone while driving and the incidence of road traffic accident amongst motorists in Zaria.

Method: The study was carried out using cross-sectional descriptive survey design. A self-administered questionnaire was used for data collection. The population of this study comprises of motorists from the three major parks in Zaria making a total of 544 motorists out of which 225 respondents were sampled using stratified random sampling method for the study.

Results: More than three quarters (87%) of the respondents use their mobile phones while driving. Majority (70%) of the respondents are aware of the possible hazards or risk associated with using mobile phones while driving. 72% of the motorists are unwilling to stop answering calls or use their mobile phones for the purpose of text messages while driving.

Conclusion: Laws should be implemented to ban drivers from using hand held mobile phones while driving and fines should be imposed on violators of the law. Increasing awareness on the hazards of mobile phone use while driving should be created especially in the media.

Keywords: Motorist, driving, mobile phone

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Relation entre l'utilisation du téléphone mobile et l'accident de la route chez les automobilistes de Zaria

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Resume

Objectif: L'utilisation de la téléphonie automobile a augmenté dans le contexte d'une escalade rapide des services et de l'utilisation générale du téléphone mobile. L'étude a été conçue pour déterminer la relation entre l'utilisation du téléphone mobile pendant la conduite et l'incidence de l'accident de la circulation routière chez les automobilistes à Zaria.

Méthode: L'étude a été réalisée à l'aide d'un plan d'enquête descriptif transversal. Un questionnaire auto-administré a été utilisé pour la collecte des données. La population de cette étude comprend des automobilistes des trois principaux parcs de Zaria, faisant un total de 544 automobilistes sur lesquels 225 répondants ont été échantillonnés au moyen de la méthode d'échantillonnage aléatoire stratifiée pour l'étude.

Résultats: Plus des trois quarts (87%) des répondants utilisent leur téléphone mobile pendant la conduite. La majorité (70%) des répondants sont conscients des dangers possibles ou des risques associés à l'utilisation de téléphones mobiles pendant la conduite. 72% des automobilistes ne sont pas disposés à arrêter de répondre aux appels ou d'utiliser leurs téléphones mobiles à des fins de messages texte pendant la conduite.

Conclusion: Des lois devraient être mises en place pour interdire aux conducteurs d'utiliser des téléphones mobiles à main pendant leur conduite et des amendes devraient être imposées aux contrevenants de la loi. Une sensibilisation accrue aux dangers de l'utilisation du téléphone mobile pendant la conduite devrait être créée en particulier dans les médias.

Mots clés: Automobile, conduite, téléphone mobile

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INTRODUCTION

Hand-held telephones are devices which require the telephone receiver to be held to the ear during conversation. Hands-free telephones are devices which enable the user to talk on the telephone without the need to hold the receiver to the ear. This is achieved through a separate earpiece and a microphone worn by the driver as a personal hands-free telephone or microphone and speaker mounted in the vehicle as a hands-free speaker mobile telephone. A wide range of new services, new designs as well as new users of mobile telephones has led to enhanced business communication, increased personal convenience including opportunities to alert rescue services in the event of a crash or breakdown (1).

Driving is the controlled operation and movement of a land vehicle such as a car, truck or bus. Driving in traffic is more than just knowing how to operate the mechanisms which control the vehicle; it requires knowing how to apply the rules of the road (which govern safe and efficient sharing with other users). An effective driver also has an intuitive understanding of the basics of vehicle handling and can drive responsibly. In terms of the basic physical tasks required, a driver must be able to control direction, acceleration, and deceleration. A person is subject to the laws of the jurisdiction in which he or she is driving. The rules of the road, driver licensing and vehicle registration schemes that apply vary considerably between jurisdictions, as do laws imposing criminal responsibility for negligent driving, vehicle safety inspections and compulsory insurance. Most countries also have differing laws against driving whilst under the influence of alcohol or drugs. Most countries require a vision screening test for individuals to acquire or renew a driver's license, this may yet be compounded by their incessant use of mobile phone while driving(2).

Nigeria is ranked 191 out of 192 countries in the world with un-safe roads with 162 death rate per 100,000 population from road traffic accident(3). The use of mobile phone while driving is widespread and it is an issue of mounting public concern, namely the danger posed by drivers distracted by dialling, talking or texting on cell phones. The reason for the concern is accumulating evidence of risk to the public from distracted drivers (3).

The high rate of road traffic accident constitutes a social dismay to Nigeria contributing to our high mortality and morbidity. Driver distractions have been suggested as a contributor to traffic accidents. With the rising use of cellular phones, there has been a corresponding increase in the number of traffic deaths and injuries sustained by people who use their cellular phones while driving. Data suggest that cellular phone use was a factor in approximately 2,600 traffic deaths in the United States (4). Distraction while driving (known as DWD) is responsible for 25% of all car accidents, with many of those coming from the distractions of using a cell phone or other mobile device. In the area of mental distraction, a study by Carnegie Mellon University found that the amount of brain activity devoted to driving may decrease by as much as 37 % when using a cell phone (5). While hands-free phones and other devices, such as speed dialling and voice activation reduce physical distraction, the most important negative factor associated with using a mobile phone while driving, whether hands-free or hand-held, is diversion of attention from driving to the conversation itself (6). Based on the afore mention challenges, the researchers sought to determine the use of mobile phone by drivers and their awareness of the related risks.

METHODOLOGY

The study was a descriptive cross-sectional study among motorists in Zaria aimed to find out the relationship between the use of mobile phone and road traffic accident. The study population consisted of commercial drivers of taxi and buses who commute to and fro Zaria and those involved in intra city transit with the exclusion of non-commercial drivers. Approval for the conduct of the study was obtained from the leadership of various drivers and riders Union and the informed consent of the respondents was sort and the motorists' confidentiality was guaranteed. The total population of motorists from the three major parks in Zaria includes (Kwangila 250, PZ 150, Sabon Gari 144) constituted a total of 544 motorists out of which 225 motorists were proportionately drawn to participate in this study using a cluster sampling technique. Commercial motorists numbering 75 were selected from each of the three major motor parks (Kwangila, PZ, Sabon Gari) making a total of 225 commercial motorists. Data was collected using a structured questionnaire with closed ended questions. The questionnaire content and face validity was ensured. Data collected from the motorists were analyzed using descriptive and inferential statistical methods. The data were analysed using Statistical Package for Social

Science (SPSS version 17).

RESULTS

Table1 showed majority (92.2%) of the respondents fall under the age range of 30-59 years and their academic qualification were 60.8% had tertiary and secondary education while the rest 39.2% respondents indicated having obtained primary and non-formal education respectively. Majority (83%) of respondents were Hausa-Fulani ethnic group and equal percentage (83.9%) of respondents was married (Table 2).

All the respondents agreed that they own vehicles though with varying years of experiences as indicated with majority in the range of between 5 – 20 years of being a motorist. The respondents indicated that they had their cell phones with them while driving while large number (86.6%) of them do actually use their mobile phones while driving as against few (13.4%) of the respondents who claimed not using mobile phones while driving. Majority of the respondents (77.7%) do not make use of the hands-free device made available for calls while driving as almost half (56.2%) of them have been using their phones for the periods of 6-10 years. This explained the rate at which the commuters and the passengers could be involved in road traffic accidents resulting from use of mobile phones while driving.

Regarding the use of mobile phones while driving, few (15.2%) make calls with their phones. Little above half (66.1%) received phone calls with through mobile phones, while 5.4% used their phones to send message, as 13.4% of the respondents indicated that they do not perform any of the above stated act while driving. Majority of the respondents 148 (66.1%) advocated the legislation of stiffer laws prohibiting the use of mobile phones while driving. Another 55.4% of the respondents indicated that the introduction of fines will go a long way in reducing the dangers of non-adherence to laws by motorists, 44.6% stating that the use of mass media for campaign against the use of mobile phones while driving will also help to encourage motorist to adhere to stipulated laws prohibiting the use of mobile phones while driving.

On respondents' knowledge on the risk involved in using mobile phones while driving, Majority of the respondents (72.3%) are aware of the possible hazards or risk associated with using mobile phones while driving (Table 3). On the problems associated with mobile phones while driving, 156 (69.6%) respondents stated that accident could occur while using mobile phone while on wheel others identified deafness, severe distraction and brain related challenges as likely problems associated with use of mobile phone while driving.

It was also revealed that mass media and journal play a vital role in passing information as regards the hazards of mobile phone use while driving with majority (56.7%) of the respondents stated that long term experiences and words of caution from friends was another major source of information on the dangers of using mobile phone while driving. Sequel to the above statement, the result also buttressed the fact that a large percentage (45.4%) of the respondent has been involved in one form of road mishap or the other as a result of mobile phone use while driving.

Table 4, majority (72.3%) of the respondents revealed that they would not stop using their mobile phone while driving as against 27.7% respondents who declared their intentions stop using their mobile phones while driving.

On the reasons why they could not stop using phones while driving, 41.1% of respondents indicated that cost of return calls is a reason why they would not miss their calls even while driving, and another 44.6% of respondents believed it would go a long way in reducing tension among friends and family members on their state of health or safety as at the time they called.

On the hypothesis which stated that there is no significant relationship between mobile phone use while driving and road traffic accident, the result showed the x^2–calculated of 28.961 which is greater than the x^2–Critical value of 3.841 at 0.000 level of significance implied that the null hypothesis is therefore rejected.

The result of this study showed that the x^2–calculated of 1.7792 is less than the x^2–Critical value of 7.815 at the observed level of significance of 0.000 implied that the null hypothesis which states that there is no significant relationship between mobile phone use while driving and road traffic accident, is therefore retained.

DISCUSSION

This study on the relationship between use of mobile phone while driving and cause of road traffic accidents showed that majority (92.2%) of the respondents whose age range were between 30-59 years were Hausa-Fulani ethnic

group and have attended one form of western education or the other. This implied that majority (60.8%) of commuters are literate and can read and write in English Language.

Almost all the motorist own vehicle(s) and have varying years (5 – 20 years) of driving experiences and most had mobile phones with them while driving as 87% of them reported operating their phones at some time or the other. This was corroborated by the report on alarming increase of drivers using mobile phones while driving by the report of a study (6). Based on the knowledge of drivers on the hazards of using mobile phone while driving, majority (70%) of the respondents were cognizant of the relationship between road accidents and use of mobile phones while driving. This finding also agreed with similar studies on drivers being aware of impaired driving performance in using phone while driving. Another 24% of the respondents believed that use of phone while driving causes severe distractions which might probably serves as distraction thereby loosing concentration on wheel. This finding is in agreement with a survey which found that drivers typically take their eyes off the forward roadway for an average of four out of six seconds (7,8,9).

However this study also indicated that 28% of drivers who were ignorant of the hazards resulting from the use of mobile phone while on wheel were doing so without knowing the consequences of such act. This finding is in accordance with the study which opined that some drivers do not seem to be entirely aware of the adverse effects of mobile phone use on their driving performance(10). Despite the awareness and the knowledge about hazards associated with using mobile phone while driving by majority of the motorist, most (72%) of them showed unwillingness to stop the use of mobile phones while driving and this corroborate with a similar trend in some studies(11). Although the responses from commuters' willingness to stop using mobile phones while driving in this study was poor, majority of them are aware that it is dangerous to either call or receive phone calls while driving and such act can results into road accident that maim or loss of life of parties involved.

On measures to reduce use of mobile phones while driving, a large proportion of respondents advocated for laws that will enforce the use or ban the use of mobile phones while driving. Lack of law or enforcement of existing laws on the use of mobile phone while driving, the use of mobile phones while driving will continue to be on an increase because there is no concrete law to prosecute offenders. This finding agrees with the report by Federal Road Safety Commission in Zaria that most offenders when apprehended with the use of mobile phone while driving are not being penalized because there is no strong law or legislation backing it. Also in Washington DC after a ban on mobile phone while driving went into effect, a drastic reduction from 6% to 3.5% (12,13). The findings of this study revealed that there is significant relationship between the use of mobile phone while driving and road traffic accident which is corroborated by the findings of study on cell phone usage and travel behaviour in Ondo State, Nigeria (13,14,15).

CONCLUSION

The study showed that majority of the respondents are aware of the hazards (road accidents) related to the use of mobile phones while driving but they all showed unwillingness to stop using phones while driving and from this study we can be seen that there is a great relationship between road accidents and use of mobile phones while driving.

Conflict of interests: The authors declare no conflicts of interest.

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Table 1: Demographic distribution of respondents

Variable	Frequency	Percentage (%)
Age (Years)		
20-29	16	7.1
30-39	34	15.2
40-49	112	50.0
50-59	54	24.1
59 and above	8	3.6
Total	**224**	**100**
Education		
Non formal Education	8	3.6
Primary	80	35.7
Secondary	12	5.4
Tertiary	124	55.4
Total	**224**	**100**
Religion		
Islam	193	86.2
Christianity	29	12.9
Others	2	0.9
Total	**224**	**100**
Tribe		
Hausa	186	83
Igbo	6	2.7
Yoruba	28	12.5
Others	4	1.8
Total	**224**	**100**
Marital status		
Single	32	14.3
Married	188	83.9
Divorced	4	1.8
Total	**224**	**100**

Source: Field study 2014

Table 2: Distribution of the motorists based on cell phone use while driving

Variables	Frequency	Percentage	Mean	Std. Dev.	Rm
Years of being a motorist					
5 – 10	61	27.2	1.7812	.56139	A
11 – 15	155	69.2			
16 – 20	4	1.8			
21 – 25	4	1.8			
Do you use mobile phone while driving?					
Yes	194	86.6	1.1339	.34134	NA
No	30	13.4			
How long have you been using mobile phones while driving? (Years)					
2 – 5	59	26.3	2.0446	.91709	A
6 – 10	126	56.2			
11 – 15	9	4.0			
No response	30	13.4			
Do you use hand-free while driving?					
Yes	20	8.9	2.0446	.76221	A
No	174	77.7			
No response	30	13.4			
Do you switch off your phone while driving?					
Yes	15	6.7	1.9330	.38176	A
No	209	93.3			
What do you use phones for while driving?					
Make call	34	15.2	2.1696	.55139	A
Receive call	148	66.1			
Send message	12	5.4			
None of the above	30	13.4			
Should law prohibiting use of mobile phones while driving be made?					
Yes	148	66.1	1.3393	.47453	NA
No	76	33.9			
Can these law be adequately enforced?					
Yes	132	58.9	1.7098	.53630	A
No	92	41.1			
How can maximum compliance be achieved					
Fines	124	55.4	1.9107	.28579	A
Mass campaign	100	45.6			

A = Acceptable based on the mean criterion value of 1.50 mean and above
NA = Not Acceptable based on mean criterion value of below 1.50

Table 3: Distribution of respondents based on knowledge of motorists on hazard of mobile phone use while driving

Variables	Frequency	Percentage	Mean	Std. Dev.	Rm
Can the use of mobile phones while driving cause hazards					
Yes	162	72.3	1.2768	.20698	NA
No	62	27.7			
Problems associated with mobile phones while driving					
Accident	156	69.6	1.8170	.52355	A
Deafness	8	3.6			
Brain related tumor	5	2.2			
Severe distraction	55	24.6			
Source of information					
Mass media	118	52.7	1.7366	.47453	A
Self experience	72	32.1			
Journals	9	4.0			
Friends	25	11.2			
Do you know that use of phones while driving can cause accident					
Yes	178	79.5	1.2054	.49824	NA
No	46	2.5			
Have you been involved in road accident using mobile phones while driving before					
Yes	102	45.4	1.5446	.49912	A
No	100	54.5			

A = Acceptable based on the mean criterion value of 1.50 mean and above
NA = Not Acceptable based on mean criterion value of below 1.50

Table 4: Distribution of respondents based on Willingness of motorists to abstain from using mobile phones while driving

Variables	Frequency	Percentage	Mean	Std. Dev.	Rm	
Would you stop answering call while driving						
Yes	62	27.7	1.7232	.44841	A	
No	162	72.3				
Would you switch off your phone while driving						
Yes	8	3.6	1.9643	.18599	A	
No	156	96.4				
Would you use hands free while driving						
Yes	128	57.1	1.4286	.49598	NA	
No	96	42.9				
Have you ever been charged for making calls while driving						
Yes	34	15	1.8482	.35962	A	
No	190	85				
What are the implications of not answering your phone call while driving						
Cost of returning calls	92	41.1	1.732	.69569	A	
Creating tension among friends and family						
No implication	100	44.6	1			
	32	14.3				
Would you advice your loved ones to stop answering calls while driving						
Yes	94		1.5804	.49461	A	
No	130					

A = Acceptable based on the mean criterion value of 1.50 mean and above
NA = Not Acceptable based on mean criterion value of below 1.50

Table 5: Chi square test for use of mobile phone while driving and road traffic accident

Variables	**N**	**X^2-Cal**	**X^2-Crit**	**DF**	**Sig.**
Do you use mobile phone while driving	224	28.961	3.841	1	.000
Have you been involved in road accident while using mobile phone	224				

Table 6: Chi square test for the knowledge of hazards caused by the use of mobile phone while driving and road traffic accident

Variables	**N**	**X^2-Cal**	**X^2-Crit**	**DF**	**Sig.**
Problems associated with mobile phone use while driving	224	1.7792	7.815	3	.000
Do you know use of mobile phone while driving can cause accident	224				