

# Analysis Of The Effects Of Mobile Phones' Usage On Drivers' Behaviour In Abeokuta City, Nigeria

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**Abstract:** *The aim of this research is to analysis the effects of mobile phone on drivers' behavior and safety in Abeokuta. The objectives are to investigate the experiences of automobile drivers with respect to the use of mobile phones while driving; to investigate the role of traffic authority in the regulation of drivers' phone usage; to make recommendation on how drivers' mobile phone use can be regulated and create awareness in enhancing public safety. The target population of this research comprises of both commercial and private drivers, and the Federal Road Safety Commission (FRSC). The sample frame for this research is the total number of registered automobile commercial drivers in Abeokuta which is 1,256 (NURTW, Abeokuta chapter). 8% of the sampling frame, was randomly selected in arriving at the sample population of 100 for the commercial drivers. However, Asero Grammar School was purposively selected as the sampling area for drivers that are not commercial in nature (Private Drivers). Total enumeration was adopted as all the teachers with automobiles were completely administered questionnaires. Altogether, one hundred and twenty five (125) questionnaires were administered to get primary data for this research. Interview was equally conducted to traffic officials of the FRSC. Findings, among others, reveal 19% of those who claim to use their mobile phones while driving had once been involved in accidents. The study recommends that the increment of the fine of the penalty on the use of mobile phones while driving under the Federal Road Safety Commission Offences and Penalties from N 4,000 to N 20,000 will represent a more effective deterrent.*

**Keywords:** *Accidents, Drivers, Mobile Phones, Safety, Regulation*

## I. INTRODUCTION

Driving distraction in vehicle has become more prevalent than before with the increasing technology finding its way into the automobile. Over the years, it has been argued that the most visible cause of distractions in vehicle is the mobile phone. Driving distraction has to do with diversion of attention away from activities critical for safe driving toward competing activities. The use of mobile phone is part of the border integration and communication technology worldwide (World Health Organization, 2011). This allows an instant and continues flow of information and social networking which may cause a great distraction in driving exercise. Although, the need for people to move from one place to another is

necessitated by the spatial spread of activities within the geographical space (Federe and Salami 2004), and has led to high use of automobiles and mobile phone. Initially, mobile phone was meant to cover travel distance (i.e reach places automobile can't reach). However, in recent times, mobile phone is being used by people while driving. The effects of this, among others include the tendency for drivers to take his/her eyes off the road while driving and using mobile phone at the same time. In Nigeria, the existing information about the use of mobile phone while driving survey, by (Alive Road Safety Initiative, 2010), shows that driver's distraction was the singular most important safety issue in the country. According to the survey, drivers' distraction through the use of mobile phone accounted for 25% of the causes of road crashes. In

addition, 43% of Nigerians are recorded to use mobile phone (phoning or texting) while driving and 57% of them were young people of 18-30 years.

The use of mobile phones can cause drivers to take their eye off the roads, their hands off the steering wheel and their mind off the road and surrounding situation. It is this type of distraction known as cognitive distraction which appears to have the biggest impact on driving behavior. There is a growing body of evidence that shows that the distraction caused by mobile phone can impair performance in a number of ways. For instance longer reaction times (notable braking reaction time, both also reaction traffic signals); impaired ability to keep in the correct lane, shorter following distance, and overall reduction in awareness of the driving situation. Text messaging is often a low cost form of communication, and the increasing use of text messaging service among drivers are more likely to make this an important road safety concern. The impact of using a mobile phone on crash risk is difficult to ascertain, but studies suggest that drivers using a mobile phone are approximately four times more likely to be involved in a crash. The increased risk appears to be similar for both hand-to-held and hand-free phones suggesting that it is the cognition on a mobile phone that has the most impact upon driving behavior and thus crash risk. While the body of research is looking at the risk associated with using a mobile phone while driving there is much less known about the effectiveness of intervention to address this issue. As a result, number of countries are following an approach that has been known to be successful in addressing other key factors for road traffic injuries such as in increasing seat belt use, or reducing speed and drink.

The aim of this research is to analyse the effect of mobile phone on drivers' behavior and safety in Abeokuta. The objectives are to investigate the experiences of automobile drivers with respect to the use of mobile phone while driving; to investigate the role of traffic authority in the regulation of drivers phone usage; to make recommendation on how drivers mobile phone use, can be regulated and create awareness in enhancing public safety

## II. LITERATURE REVIEW

Using a mobile phone while driving has a negative implication on driver's behavior (Basecik and Robbin, 2011). This is the case for conducting a conversation, dialing a number and sending text messages, as well as for using extra functions that smart phones offer, like accessing the internet or social network sites. The negative effects of mobile phone use are not only due to physical, visual, and auditory distraction stemming from operating the phone and the vehicle at the same time, but also because drivers may have to divide their attention between using the phone and driving (cognitive distraction). As cognitive distraction poses danger, hand free phone use has no notable safety advantage compared to hand-held use (Australian Transport Safety Bureau, 2007). However, a total prohibition of mobile phone use by drivers is not realistic. For this reason, only handheld use forbidden in many countries (WHO 2007). Besides legislation, technical measures, information and education can enhance responsible

use of mobile phone. The rapid growth of the possession and use of mobile phone in recent years has generated a wide interest in safety issues lie distraction while driving.

The fact that many drivers own and use a mobile phone has raised concerns among scientist, the media and policymakers. One of the predominant arguments against banning mobile phone conversation while driving is that conversing with a passenger is allowed. Indeed, the contents of the two types of conversation seem hardly different. However, the major is that a conversation with a passenger is self-regulating as a result of direct contact. The passenger is aware of driving situation, so that the complexity and the pace of the conversation is often adjusted (Drews, Pasupathi & Strsyer, 2008). This as opposed to talking to a person on the phone. Another difference seems to be the sound quality. In mobile phone this may not be optimal. Therefore, more attention and effort are required to understand the message and this may be at the expens of driving performance ( Stelling-konczak & Hagenzieker, 2012). Whereas some results in a worse performance than talking to a passenger, other studies indicate that both types of conversation have the same effect on the driving task.

There is an increasing body of research indicating that using a mobile phone while driving present a significant safety risk (Mc Cartt, 2006). Driving safety requires substantial intentional resources. However, using a mobile while driving competes for the drivers attention subsequently reducing the amount of mental resources available to safely drive the vehicle (Svenson & Pattern, 2015). Noted problems are lapses in concentration when following other drivers, drifting towards lane boundaries, failure to observe traffic signs significant lowering of speed (Lamble, Rajalin & Summalia, 2002) and increased braking time (Lamble, Kathene, Laasko, & Summalia, 1999). Auditory perception, essential for estimating vehicle speed and non-visual driving is reduced (Kawano, Iwanko, Azuma, Moriwaki, & Hamadi 2005), dual-taking increase in complexity (Hancock, Leschi & Simmons, 2003); and the inability of the person on the other end of the phone to adjust drivers task load (Amado & Cilupinar, 2006). Although, the majority of these findings are based on simulator studies, which may not accurately reflect on-road behavior, the result demonstrate how using mobile phone while driving negatively impacts on driver performance.

Short Messaging Service (SMS, commonly known as text messaging) use while driving is particularly problematic. The process of receiving, reading and sending a text message requires drivers to direct their field of vision towards the mobile screen, rather than on the road and to remove their hands from the steering wheel up to 400 percent more time looking away from the road when text messaging than when not messaging. Additionally text messaging while driving requires manipulation of the mobile phone. Text messaging result decreased detection performance and increasing accident risk (Hosking,2005). Thus, sending or reading text messages while driving is an unsafe driving practice.

### III. METHODOLOGY

This study adopted the survey research approach. Questionnaires were designed and administered to a sampled population. Some other methods employed to collect other necessary or required data for analysis includes personal observation, interview and also the use of the both published and unpublished materials. The target population of this research comprises of both commercial and private drivers, and the Federal Road Safety Commission (FRSC). The sample frame for this research is the total number of registered automobile commercial drivers in Abeokuta which is 1,256 (NURTW, Abeokuta chapter). 8% of the sampling frame, was randomly selected in arriving at the sample population of 100 for the commercial drivers. However, Asero Grammar School was purposively selected as the sampling area for drivers that are not commercial in nature (Private Drivers). Total enumeration was adopted as all the teachers with automobiles were completely administered questionnaires. Altogether, one hundred and twenty five (125) questionnaires were administered to get primary data for this research. Interview was equally conducted to traffic officials of the FRSC.

### IV. DISCUSSION OF FINDINGS

From the research, majority of the respondents are male 90%, while 9.6% are female. This is to show that the male gender is more involved in driving activities than the female gender. The research also revealed that respondents between 31-35 age groups were the most significant with a percentage of 57.6. This shows that driving activity is dominated by those within the age group of 31-35 years who are younger adults. Young drivers are more likely to be using mobile phones while driving than older drivers and are particularly vulnerable to the effect of distraction given their relative inexperience behind the wheel and their exuberant proclivity. The early mobile phone had only a call function but the modern smart phone has more and more function like text messaging, email, internet use, which ultimately has great appeal among young people, and may distract them in the course of driving. According to the research it is also evident that majority of the respondents are married (44%). This is followed by 30.4% of those that are singles; 20.8% who were divorced and 4.8% who were widowed. It is also revealed that majority of the respondents 74.4% have a mobile phone. Majority of the drivers (57.6%) interviewed prefer leaving their phones in the normal phone mode. This is followed by those who leave theirs in vibration mode (25.6%), and those who leave their phones in silent mode (8.0%). It is evident that only 8.8% of the drivers who switch off their phones have the intention not to be distracted while driving. Those who put their phones on vibration and silent modes may have the intention to note incoming calls, and only respond to them, when they are off the driving wheels. However, the flashes and vibrations notifying of incoming calls can be distractive. Obviously, the sound from phones put on normal modes causes auditory distraction, as the drivers focus on the ringtones such that fewer environmental sounds reach them. Majority of the respondents (84%) claim they do pick calls while driving.

When using mobile phone and driving, 4% due to anxiety, moves at a faster driving speed which can be categorized as bio-mechanical (an uncontrollable stimulation of the body) and this can lead into accident. 80% of the drivers suddenly change to slower speed during phone calls reception and the abrupt speed variation can pose a great risk to the driver and other road users. 68.0% do not notice or even obey traffic signs when their mobile phone is in use causing them to violate traffic law subconsciously. However, 19% of those who claim to use their mobile phones while driving had once been involved in accidents. This pointedly corroborates other researches like Goodman (1999) that have espoused the fact that mobile phones usage during driving is a huge risk factor in accident studies. This is equally consistent with records from the FRSC that show the use of mobile phones while driving had accounted for 354 road crashes, involving 9 casualties and 345 fatal injuries in the study area. As contained in the section of the Nigerian Highway Code, using mobile phone while driving is an offence, and the penalty is the payment of N4, 000. However, majority of the respondents (85%) claim not to have been caught by the FRSC officials while making use of mobile phones and driving. This shows that regulatory efforts regarding the use of mobile phones and driving had been lax in Abeokuta.

Sex of Respondents		
Gender	Frequency	Percentages
Male	113	90.4
Female	12	9.6
Total	125	100
Age of Respondents		
Age Distribution	Frequency	Percentage
21-25 years	150	50.0
26-30 years	51	17.0
31-35 years	24	8.0
36-40 years	39	13.0
41 years and above	21	7.0
Total	125	100
Educational Background of respondents		
Option	Frequency	Percentage
Primary education	53	42.4
Secondary education	26	20.8
Tertiary education	7	5.6
Vocational education	39	31.2
Total	125	100

Authors' Survey Analysis (2015)

Table 1: Socio-economic Characteristics of the Respondents

Mode which Phones are put into while Driving		
Option	Frequency	Percentages
Switched off	11	8.8
Silent mode	10	8.0
Normal mode	72	57.6
Vibration mode	32	25.6

Total	125	100
Call Activities while driving		
Option	Frequency	Percentage
Pick calls while driving	105	84
Do not pick calls while driving while driving	19	14
Park by the road side before picking calls	1	2
Total	125	100
Effects of Mobile phone on Drivers' Behaviour		
Option	Frequency	Percentage
Slower Driving Speed	100	80
Increases driving speed	5	4
Normal	20	16
Total	125	100
Obeisance of Traffic Rules while using a Mobile Phone and Driving		
Option	Frequency	Percentage
Yes	40	32.0
No	85	68.0
Total	125	100
Involvement in Crashes caused by the use of Mobile Phones		
Option	Frequency	Percentage
Yes	20	19
No	95	81
Total	105	100
Arrested by FRSC officials while using mobile phone and driving?		
Option	Frequency	Percentage
Yes	15	15
No	90	85
Total	105	100

Authors' Survey Analysis (2015)

Table 2: Telephony Behaviours of Drivers

## V. CONCLUSION AND RECOMMENDATION

Every new technology introduced into a society causes problems, or perhaps it is better to say that it has effects that inflict change on our everyday relationships and create friction. It takes time to adapt and develop the appropriate ethics to go with them. The mobile phone is no exception and since, so many people are using them now, they are a major source of concern. One of the strongest points used by legislators in pushing through laws against mobile phones is that the phone is a different kind of distraction. It is more demanding. Distraction such as navigation system, the radio, passengers changing chatting can be managed by the driver. The mobile Phone on the other hand, can ring at any time, and there may be a sense of importance or urgency in a phone call that drastically disturbs the driver's ability to attend to matters

in traffic. On the basis of the findings of the study in respect to the negativity mobile phone usage while driving suggests on the people's health and safety, the following recommendation are made:

- ✓ There is the need for the deployment of surveillance and remote sensing techniques such as the use of cameras to detect people who use mobile phones while driving.
- ✓ The increment of the fine of the penalty on the use of mobile phones while driving under the Federal Road Safety Commission Offences and Penalties from N 4,000 to N 20,000 will represent a more effective deterrent.
- ✓ There should be a deliberate effort towards entrenching the awareness on the dangers of using mobile phones while driving in the public.

Government should put up signs in strategic places that prohibit driving and using phones.

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