Mobile Phone Use and Safety Consideration for Motorcycle Passengers in South-Western Nigeria

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Abstract:
The study evaluated mobile phone use and safety consideration for motorcycle passengers in south-western Nigeria with a view to assessing the extent of passenger distraction and its effects on smooth arrival. Primary data were collected by using observation method at the first stage; content analysis was used at the second stage, while opinion survey was considered for the third stage of data collection. Descriptive analysis was employed on data collected. Results indicated that there is high level of distraction by passengers on motorcycle (69.1%). Specifically female passengers manifested higher rate of distraction relative to male (79.3%). It was further revealed that injuries suffered through motorcycle crashes affect sensitive parts of the body (head, knee, wrist, waist, and leg). The study concluded by recommending that passenger safety should be enforced by making it mandatory for all passengers on motorcycle to holding firmly to safety tools on the motorcycle. It was also suggested that recommendations should be passed to manufacturers to install a mini cage to serve as protection for passengers.

Keywords: Safety, distraction, passengers, security, union offices

1. Introduction

1.1. Mobile Phone Use and Motorcycle Transport

Mobile phone use is not a new phenomenon in most countries of the world, including Nigeria. Agbaje, Osotimehin, and Adewale (2017) posited that apart from infants who may be too small to operate mobile phone, everyone carries at least one phone in Nigeria. This technology has become the closest companion to man in the evolution of technology and it goes with man wherever he goes, demands constant and continuous interactions (Agbaje & Osotimehin, 2015). At the inception of mobile phone in Nigeria in 2001, consumers never expected anything other than clear voice communication. Today, mobile phone use is for everything such as communication, advertisement, photography, radio, video recording, and television. Its use and advantages are unprecedented. It has been argued that youths are the most active users of mobile phones, especially the literate segment of the society (Grinter et al., 2006; Castells et al., 2006; Batat, 2009). The interactive nature, as well as the continuous and randomness in its use for social and business transactions have encouraged the need for mobile phone users to keep close to their mobile phone at all times so as to ensure effectiveness in partner and customer management. All these are necessary because of the spate of competition in social interaction and business interactions in the world of today. Customers in business relations today constantly prefer reduced lead time between placing order and delivery.

With increasing population coupled with high network of movement of people and goods on our roads has led to an increase in the number of automobile users in Nigeria without corresponding or commensurate increase/expansion on our roads. This has overtime resulted to traffic situation that may not clear off in hours. This situation has resulted in increased use of motorcycle as an alternative means of transportation where goods conveyance is minimal. Motorcycle transport can be seen everywhere (state capitals, major cities, local communities). The rationale behind motorcycle adoption as a means of transportation by passengers is its ability to navigate small space area and arrive at destination earlier than automobiles. A slight exclusion to the use of motorcycle for mobility in Nigeria can be found in Lagos state where some roads have been prohibited for use by motorcycles. The same prohibition was also promulgated in Abuja (Federal Capital Territory), as well as Port Harcourt. The reason for the prohibition in these cities is the safety consideration for both passengers and operators. Their accidents have always been fatal whenever they occur. Efforts by regulatory authorities in reducing accidents have been through enforcement of the use of helmet by rider and passenger, eliminating operation on major highways, and restriction of operation to specific hours of the day. Despite all these measures, the use of commercial motorcycle as a means of transportation is a major activity on most of our roads, and these cannot be overestimated.

Previous researches on passenger safety and mobile phone use have concentrated on mobile phone use by automobile drivers. This is because the safety consideration for passengers was conceived as almost totally resting in the hands of the driver. There is little or no thought of safety of passenger and mobile phone use while being commuted
through motorcycle as a medium of transportation as is being considered in this study. In essence, passenger has a role to play in safety consciousness while being commuted.

1.2. Safety and Distracted Attention of Motorcycle Passengers Using Mobile Phone

Constant improvement in mobile phone features has led to emergence of many applications apart from voice communication. All these have led credence to the need for continuous interactions so as to attend to the diverse of alternatives being use by clients at the other end. Previous studies such as Nasar, Hecht, and Wener (2008) have focused on mobile phone use by automobile drivers and its safety concern to pedestrians. This is because the safety concept for passengers, other road users, and pedestrians in automobile use is significantly in the hands of the driver; passengers have minimal contribution to the safety of the moving vehicle in which they are boarded. As it was previously stated, youths are the most active segment of the society in terms of mobile phone use. Likewise, the same category of the society also stands out as the quickest to patronise motorcycle for transportation. This is because they have stamina to easily compete for its service within a bundle of the society needing mobility in the case of its use for transportation (commercial and or personal). The youths are also very agile in directing the operator to their destination; an attribute that operators see as beneficial for quick delivery in situation when the exact destination is not familiar to the motorcycle operator. Among other observable features of youth on motorcycle are; ability to mount the seat and alight smoothly and quickly, easy maintenance of balance when in motion, and sometimes the passenger may release one of his legs to act as support when the need arises.

Contrary to the highlighted facts, motorcycle is a two-wheeled machine; its stability depends on the stability and concentration of the operator as well as the passenger being conveyed. Given the extent of user concentration when mobile phone is being engaged, the stability and safety of passengers on the two-wheeled engine (motorcycle) are compromised due to mobile phone distraction. All the identified distractions for automobile drivers; visual, cognitive, physical, and auditory also affect any passenger on motorcycle. Stable seating position, concentration of the passenger, support balance through the use of legs when nearing a halt, and most importantly the two hands that are to be engaged in holding firmly to passenger safety tools on the motorcycle are being used on mobile phone, leaving the passenger to free force of inertia. The implication here is that increased distraction through mobile phone engagement is prevalent by passenger on motorcycle. Any sudden reflex by the operator due to traffic structure, other road user's decision making, or halt, and most importantly the two hands that are to be engaged in holding firmly to passenger safety tools on the motorcycle are being used on mobile phone, leaving the passenger to free force of inertia. The implication here is that increased distraction through mobile phone engagement is prevalent by passenger on motorcycle. Any sudden reflex by the operator due to traffic structure, other road user's decision making, or

1.3. Mobile Phone Use and Passenger Safety

Researchers have not given the issue of mobile phone use by passenger and its attendant safety consideration the needed attention all along. The reason being that perspectives have all along been focused only on mobile phone use by automobile driver. This is because the use of motorcycle (two-wheeler automobile) for commercial transportation has not been considered or possibly authors never concepted the use of motorcycle as a major means of transportation due to the level of development and efficient planning of their economy where such researchers are based. It is on this background that a research of this nature in a developing economy like Nigeria where motorcycle transportation is prevalent is being considered.

2. Literature Review

Considerable economic loss to casualties, their families and nations as a whole is the aftermath of traffic crashes on our roads. Road traffic injuries affect all age groups, but their impact is particularly striking among the young aged 15–29 years (2) because they possess attributes that make them move quickly from place to place. It has also been postulated that road traffic crashes will increase in the next one decade due to dramatic increase in motorization in a number of low-income and middle-income countries; an increase that now demands improved road safety strategies and land-use planning. The focus of researches on distraction has all along been on automobile drivers, but distracted walking and distracted riding on motorcycles by passengers are also potential areas of concern that are relatively lowly researched. There is evidence that mobile phone use while on the roads will lead to cognitive and physical distraction, suggesting they could have a detrimental effect on these road users too.

Cognitive distraction resulting from mobile phone use reduces situation awareness and increases unsafe behaviour among passengers on motorcycles, putting all road users (pedestrians, passenger and motorcycle operator) at greater risk of a road traffic injury (Hatfield and Murphy, 2007). This may be especially important in many low-income and middle-income countries where such ‘vulnerable road users’ are the group most likely to be impacted by a road traffic crash, and where mobile phone use is rapidly approaching levels seen in high-income countries. The relatively low cost of motorized two-wheelers makes them a popular choice of transport in many low-income and middle-income countries, suggesting that mobile phone use among this group of road users is likely to become an increasing area of concern. More work is needed to identify the sources of distraction for these road users and assess the impacts on the risk of a crash (5). In a crash between motorcycle and any other form of road using machines, both passenger on the motorcycle as well as the operator are at danger of injury because they are not protected by any steel cage such as it is in motor vehicle.

3. Methodology

3.1. Study Aims and Design

Attempt was made to evaluate if passengers were distracted through the use of their mobile phone while in transit making them less safe and perhaps falling risk of accident. Though the study focused exclusively on motorcycle passengers
in transit and their mobile phones but attempt to get good result by analysing situations based on observations was considered in this study. The rationale for this approach was that passengers would not want to put any blame on themselves if they were directly considered for data collection, likewise any attendant fatality will not provide passengers with the true picture of what practice was ongoing during their transit. A fatal situation may present an immediate memory loss on an occurrence. Again, they personally may not be able to capture the whole picture the way they were because mobile phone use has become an unconscious item in its use, leaving us to oblique result.

3.2. Participants and Sampling

The study was carried out on campuses of three higher institutions in Osun State (Obafemi Awolowo University, Ile-Ife; Osun State Polytechnic, Iree; and The Polytechnic, Ile-Ife). The choice of these groups of the populace is that they are all purely youth dominated locations with high level of literacy. They have more than average degree of cosmopolitans relative to other inhabiting youths and individuals. This justification dictates higher propensity to want to engage their mobile phone more frequently. In essence, high incidence of mobile phone use and ability to interact with diverse of mobile phone applications is expected. In these study locations, safety regulations and security apparatus are put in place to ensure that passengers are commuted in single service single delivery queue structure. The data collection exercise was divided into three stages. At the first stage, an observational method of data collection was employed to ensure that we play down any form of bias in this study. In order to achieve this, the researcher attempted to observe how many of the commercial motorcycle passengers that are being commuted over a stretch of distance per time and at a particular time of the day were busy with their mobile phone while researcher was positioned about 50 metres or less to the commonest destination by all passengers. Merely holding mobile phone in the hand did not constitute distraction but pressing it or reading any content from it. Summary statistics about these facts is in Table 1. Crashed based method of study was employed at the second stage. This approach entailed visits to the security department and union offices of commercial motorcycle riders of the three schools considered for this study in order to take note about any reported cases of motorcycle accidents by students while being commuted, Table 2. At the third and last stage, the researcher attempted to compliment results by visiting the health centres and teaching hospital in these schools to carry out some fact finding among patients and doctors/nurses of motorcycle accident victims. Data collection and fact finding interviews at the Teaching Hospital and Health centres are indicated in Table 3.

3.3. Data Collection Methods

The major road of Obafemi Awolowo University lead to the University main gate that is connecting Ile-Ife community is approximately two and a half kilometres. Commercial motorcycles are given approval for passenger conveyance along this route. This is because more than 65% of the University students live outside the University hostels on ground of inadequacy of hostels and individual student’s preference. Apart from the major road that was considered for data collection, attempt was also made to situate data collection to two other locations where lectures for large classes hold. Along this line, the researcher stood some metres away from the final destination and records by observation of students commuting on motorcycle from their various halls of residence to lecture venues were observed and recorded. For the two other study campuses where data collection exercise took place, commercial motorcycle were allowed up to a designated limit at their campus gates. This is because there are no commercial motorcycle operations within the premises of those two campuses. The rationale behind this as opposed to the Obafemi Awolowo University scenario is due to closeness of lecture halls to the main gates of each of these two campuses. The same approach (observation method) that was used in data collection in Obafemi Awolowo University was also used in these two other campuses. In essence, the researcher situated himself few metres to the final destination of students (passengers) in order to observe how many motorcycle passengers got themselves engaged (distracted) with their phone while in transit.

At the second stage, the researcher approached the security unit of Obafemi Awolowo University to examine the records of reported motorcycle accidents. On the other two campuses, there were no security units that could take records of reported motorcycle accidents because the operations of motorcycles on those study locations terminated at the campus main entrance. However, motorcycle operations in these two places also have union offices that serve similar function as it is in Obafemi Awolowo University. The only difference is that they are situated and regulated purely by the campus main entrance by all passengers. Merely holding mobile phone in the hand did not constitute distraction but pressing it or reading any content from it. Summary statistics about these facts is in Table 1. Crashed based method of study was employed at the second stage. This approach entailed visits to the security department and union offices of commercial motorcycle riders of the three schools considered for this study in order to take note about any reported cases of motorcycle accidents by students while being commuted, Table 2. At the third and last stage, the researcher attempted to compliment results by visiting the health centres and teaching hospital in these schools to carry out some fact finding among patients and doctors/nurses of motorcycle accident victims. Data collection and fact finding interviews at the Teaching Hospital and Health centres are indicated in Table 3.

4. Results

The results revealed that in 69% of instances, mobile phone was being engaged by passengers while they commute for lectures during the days of the week (Monday –Friday) through the various roads of Obafemi Awolowo University. The same pattern of engagement with mobile phone was observed in the other two campuses sampled for the study. In all the three study locations, it was observed that the rate of distraction for respondents was higher than their non-distracted counterparts. On the contrary, it was only in Obafemi Awolowo University, Ile-Ife that the level of distraction for the male proportion was found to be more than the level of non-distraction. In essence, the levels of distractions for the male in the other two study locations were lower than the average in these places.
Table 1: First Stage Report on the Study
Source: Field Study, 2018

| Classification of statements by content (n = 23 in each category) | From motorcycle rider (Figures in cells are in %) | From passenger (Figures in cells are in %) |
|---|---|---|
| Passenger was phoning and laughing loudly while in transit, little application of brake led to fall off at near halt or destination (22) | Motorcycle operator poor riding skill led to collision (39) |
| Passenger was busy with the two hands attending to social media and other phone applications when sudden application of brake due to other road users misbehaviour led to the accident (35) | Motorcycle operator was rude to me when I cautioned his recklessness (48) |
| Passenger was not careful when alighting because all attention was on phone use. This led to the leg to skid off balance (17) | Motorcycle operator claiming right of road use (17) |
| Passenger turk head under operator’s rain coat because of the wind in order to attend to phone. This is a kind of blindfold for the passenger to is prone to danger (22) | Motorcycle operator speeding as if it was a competition (35) |
| Pedestrian crossing with all senses of stimuli glued to phone. This involuntary crossing of the road where motorcycle rider could not have seen or imagined that anyone was attempting to cross. The consequence was an off balance riding by motorcycle operator that wounded the being conveyed passenger (13) | Motorcycle operator riding against traffic caused a gridlock that ended in wounding both passenger and the operator (17) |

Table 2: Second Stage Data Collection (Report from Security and Union Offices)
Source: Field Study, 2018.
5. Discussions

Results from each of the study locations gave varying outcomes. These outcomes are hereby summarized. The result portrayed 79.1% distraction among respondents of Obafemi Awolowo University. On further decomposition by gender, the result revealed that female were more distracted as measured by mobile phone engagement at 83% compared to the male with about 75% mobile phone engagement. From the Osun state polytechnic, respondents, about two-thirds (64.5%) of respondents were also observed to be engaged with their mobile phone while being commuted. The results by gender decomposition indicated that female respondents also displayed higher rate of mobile phone engagement (82.7%) while being commuted on motorcycle, the male counterpart from this class of respondents was just a little above one third (38.3%). Estimates of mobile phone engagement (distraction) while being commuted from the third category of respondents (The Polytechnic, Ile-Ife) reveal that 66% of female were busy with their phone while in transit on motorcycle. The corresponding estimate from male respondents from this category was 28.6%. By pooling the three data sources into one, it was observed that 69.1% respondents were using their mobile phone for one thing or the other while in transit. This result along gender demarcation indicated that 79.3% of female were users of mobile phone while commuting on motorcycle. Corresponding figure for the male was 57.3%

At the second stage of data collection, efforts were made to access statements of complaints recorded by both passengers and operators of commercial motorcycle on accidents that provoked mutual relationship and or understanding. From this record, the research was able to come up with 23 complaints record from passengers and 23 complaints from motorcycle operators. Content analysis of the report arrived at summary estimates presented in Table 2.

5.1. Passengers’ Complaints against Motorcycle Riders

Summary from complaints by passengers against operators are hereby discussed. That operator had a poor riding skill was attested by 39% of the passengers. Poor riding skill is a vague point that any passenger can hold on to as a clear basis for involvement in motorcycle transport accident especially where there was no collision or fall off of the motorcycle or its operator. At first, it was observed that all the operators on the Obafemi Awolowo University have riding licence issued by the Federal Road Safety Corps, a road traffic commission saddled with the responsibility of coordinating and managing road use of all on the road. Apart from the Obafemi Awolowo University, it was also gathered that wherever students’ presence are registered, a more cautious and careful transport coordination is always put in place. In essence, a good style of management of motorcycle transport in the other two campuses (Osun state polytechnic, Iree and The Polytechnic, Ile-Ife) is ensured. A first step that attested to this was the use of apron to identify campus operators from any other open space operator. Additional information gathered from union offices of motorcycle operator is the assertion by union leaders of the intermittent training that is being organised in order to give their members orientation on safety consciousness and protection of lives and properties being commuted.

Another high incidence of complaints by passengers on why the journey never ended up in smooth sail was that the passengers claimed that the motorcycle operator was rude to them while they were in transit. What this research was able to deduce from this claim was that there was a breach in communication between the two parties 48%. Generally, youths, especially those in higher institutions have the superiority believe about themselves. Thus, a cautious statement meant to be voiced politely but possibly voiced arrogantly or rudely may lead to break in communication and subsequent smooth talk in transit being aborted. Some category of passengers who ended being victim of collision or accident indicated in their report that the rider was claiming right of road use. This category of claims accounted for 17% of cases. Accident does not really identify who has right of way. The best approach that any road user is advised to imbibe is to tread cautiously when any other road user is becoming reckless, even in the face of right of road use. This is the best of security and safety tips that guarantee arrival at destination. Some of the passengers (35%) named excessive speed to the cause of their accident. In virtually all forms of transportation, there exist average speeds within which control in case of unexpected can be maintained. Any speed outside the average range becomes delicate and can be delicate and impossible to control.

| Degree of Impact on motorcycle passengers | Types of collision | Freq | No of people involved | Part of the body injured |
|------------------------------------------|-------------------|------|----------------------|-------------------------|
| Minor (one passenger involved)           | Motorcycle vs automobile | 5    | 5                    | Hand,4; leg 1            |
| Minor (two passengers involved)          | Motorcycle vs automobile | 3    | 6                    | Hand 2; leg 1; knee 3    |
| Minor (two passengers involved)          | Motorcycle vs motorcycle | 4    | 8                    | Ankle 5; Knee 3          |
| Major (one passenger involved)           | Motorcycle vs automobile | 2    | 2                    | Waist 2                 |
| Major (two passengers involved)          | Motorcycle vs automobile | 6    | 12                   | Head 7; Knee 4; Wrist 1  |
| Major (two passengers involved)          | Motorcycle vs automobile | 4    | 8                    | Leg 4, Hand 3, waist 1.  |

Table 3: Third Stage Data Collection (Report from Teaching Hospital and Campus Health Centres)  
Source: Field Study, 2018
A major area of traffic disobedience by motorcyclists is riding against traffic. Motorcyclists have been observed to disobey traffic rules on most roads in Nigeria. They ride against traffic in a bid to avoid traffic congestion along their road use pathway, this they do disobediently and with little or no caution. Such actions have resulted into accidents on many occasions, and innocent passengers have also been wounded. In critical cases, some passengers have died. According to the analysis of this study 17% have reported riding against traffic as the major cause of their accident. The second important narration was that passengers were busy with the two hands pressing their phone instead of using hands to hold firmly to the motorcycle. A little application of brake and necessary manoeuvring led to passenger loss of sitting balance that resulted in wound. Next in line was the observable attribute of youth and mobile phone. Attempt to lift body off the motorcycle met with inadequate raise of leg and that threw off the passenger from their feet. The reason behind this as narrated by motorcycle operators was that instead of passengers keying their eyes and other senses to decision to alight from the motorcycle and to even exchange transport fare was outrightly glued to mobile phone. This was the cause of falling down off the motorcycle by passengers.

5.2. Motorcycle Riders’ Complaints against Passengers

Complaints channelled by motorcycle operators against their passengers that led to infraction of smooth arrival have been put under five major classifications. The first point analysed in this study was that passenger was phoning and laughing loudly while being commuted. Phoning is an act that attempts to incite a reaction from someone at the other end of a continuum while laughter is an involuntary response from the other end that throws the receiver into a state of sub consciousness. This position of loud laughter simply sends signal that passenger was outrightly distracted in the course of transportation. Such distraction could have resulted to imbalance during manoeuvring by the motorcycle operator. Unlike automobile transport where safety of all passengers is entrenched only on the zero distraction of the driver, the case is different for motorcycle transport where both parties are bound to have zero distraction for safe riding. This study however recorded 22% mobile phone distraction by way of phoning and laughing. The second important point that was deduced from the contents of statements made by motorcycle riders was that some of the passengers 35% were busy with their two hands pressing the keyboards of their phones. Only a reasonable application of brake was responsible for their sitting imbalance that resulted to injury and bruises. It should be noted that any act of writing will take one away from consciousness of the environment unintentionally. This is the more reason why passengers commuting on motorcycle sustain injury at any slightest deviation from state of inertia. Hands that are meant to be used in holding firmly to steel plates are now held loosely with mobile phones. It should also be noted that steel cage that contains passengers in the case of automobile is outrightly missing in motorcycle. The human body on motorcycle is outrightly surrounded by open air. Also reported as contributory to injury by motorcycle operators was that while passengers were alighting both hands meant to hold and manoeuvre their balance on the ground were engaged with the phone. At this point, slightest contact of the suspended leg against any object on the motorcycle body operated against the stability of the passenger, and that resulted into fall onto the ground. It can be imagined that operators were sitting firmly on the motorcycle at this stationary position, thus cannot be adduced to have contributed to the injury sustained by passengers at this level. These complain was attested by 17%of motorcycle operators. Next from the information gathered was that passengers turk their heads under the apron worn by operators during windy weather in order to secure and continue with operations on mobile phone (22%). This position completely fenced passengers off the consciousness of his/her environment; distraction of all types. Lastly was the category of distraction as a result of mobile phone use as pedestrians crossing roads at locations where riders or motorcycle operators could not have imagined anybody wanted to cross the road. As such there was impact between a moving motorcycle and mobile phone distracted pedestrian. This reason accounted for 13% of cases.

5.3. Reports from Teaching Hospital and Campus Health Centres

A total of 24 cases involving 41 passengers/victims were collated during the visits to the various locations (Teaching Hospital and Health Centres) where victims were being treated. Two styles were considered in the classification of accidents of the passengers. The first classification involved accidents according to the degree of impact or severity of the wound on passengers. From this, we have ‘minor’ and ‘major’. The second classification was the collision between motorcycle and other types of road users (automobile, pedestrians, and motorcycles).

The researcher was able to talk with some of the patients during the various visits to teaching hospital and health centres. Out of the 41 patients/victims of motorcycle crashes, 19 were minor wounds that got patients discharged same day that they were taken for medical attention while 22 were major wounds that warrant staying longer than a day for treatment. From some of the respondents who were able to grant interview, it was recalled that mobile phone was in use as at the time when the accident occurred. This was concluded due to the fact that friends and well-wishers who quickly appeared at the hospital after the accident had occurred affirmed that there was an interaction which was not concluded, only for them to get a call that accident had occurred. Some doctors also reported that patients said they could not understand how the whole drama occurred because they were with their mobile during transit.

Another observable feature was that some patients, especially those who were not admitted due to the nature of their wound being minor were seen struggling with their phone during treatment. One of the doctors said to a patient who was seriously looking for her phone when it rang at the point of being treated to hold on ‘only the healthy and living can receive calls’.
6. Conclusion

The study on mobile phone use and safety consideration for motorcycle passengers in South-western Nigeria was carried out using primary data sourced through observation method and content analyses of reported cases to security departments of higher institutions as well as getting information from knowledgeable experts in hospitals. The results of the study indicated that mobile phone use (distraction) is on the high side by youths (69%) during conveyance on motorcycles. The rate of use is higher for females than males. Additionally it was observed that distraction was highest at the Obafemi Awolowo University compared to the other two study locations. Additional observation during data collection exercise was that Obafemi Awolowo University students are younger than students from the other two study locations.

7. Recommendations

Passengers on motorcycle should be mandated to hold firmly to safety and balance tools when commuting, this hopefully will arrest hands from being used for phone when commuting, even at the face of unavoidable crash. Government at all levels should introduce safety helmets in order to reduce or eliminate injury to passengers. There should be a mini cage structure to enhance further protection of passengers on motorcycles. This can be achieved through involvement of government putting recommendations across to motorcycle producers in terms of specification for safety tools inclusion.

Motorcycle operators should be traffic monitored to obey road use rules, as well as create motorcycle specific road network to minimise the risks of competing with automobiles.

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