KNOWLEDGE OF MOTORCYCLE ACCIDENTS AND UTILISATION OF SAFETY KITS AMONG COMMERCIAL MOTORCYCLISTS IN IDO LOCAL GOVERNMENT AREA, OYO STATE

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DEDICATION

This work is dedicated to the Almighty Allah.

CERTIFICATION

I certify that this project was carried out by YUSUF, Abdulkabir Toriola of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, under my supervision.

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ABSTRACT

The socio-economic situation in Nigeria has necessitated motorcycle use as a means of transportation and livelihood. Fatal head injuries, fractures and bruises sustained as a result of non-use of safety kits remain a public health concern in the country. Earlier studies in Oyo State had focused on causes of Commercial Motorcycle Accident (CMA) among commercial motorcyclists (CMs) in Ibadan Metropolis. This dearth of information on the use of safety kits aimed at reducing the impact of fatal injuries among CMs. This study was therefore designed to investigate the knowledge of motorcycle accident and utilisation of safety kits among CMs in Ido Local Government Area, Oyo State.

This descriptive cross-sectional study employed a three stage sampling technique, which includes LGA wards, CMs units and 400 consenting respondents. A semi-structured, interviewer-administered questionnaire was used to elicit information on respondents' socio-demographic characteristics, causes of CMA, utilisation of safety kits and knowledge of safety kits (KSKs). Knowledge was measured on a 14-point scale; scores ≤5, >5-10 and >10were categorised as poor, fair and good respectively. Focus Group Discussion on causes of motorcycle accident and utilisation of safety kits were analysed thematically while quantitative data were analysed using descriptive statistics, Chi-square test and logistic regression at p=0.05.

Respondents' age was 31.7±9.0 years, 50.0% had completed secondary education and 64.3% had at least five years' experience in commercial motorcycle riding. About a third (37.8%) had been involved in CMA in the last six months and47 (11.8%) of these had CMA twice prior to the study. Most common injuries sustained during CMA were bruises (34.1%) and burns (26.9%). The most reported causes of CMA were slippery roads (17.4%) and collision from the rear (17.0%). Majority (84.0%) usually carry more than one passenger at a time, 64.8%received or make calls while riding. Out of the 37.8% of the respondents that had CMA, 56.0% did not use crash helmet. About 49.2% reported that they were not wearing any protective kits during the accident. About 46.2% reported not wearing crash helmet (CH) and majority (83.2%) do not provide CH for their passengers. Majority (90.0%) of the respondents saw nothing wrong in wearing bathroom slippers while riding. Majority (76.3%) had good KSKs with a knowledge score of 12.3±2.3. There was a significant association between use of protective kit helmet and occurrence of accident in the last six months. Sixty-five percent of motorcyclists who had spent 5years or more in Commercial

Motorcycle riding had good KSKs compared with those who had spent below 5years (35.9%). Respondents with more than five years' experience in motorcycle riding were less likely to be involved in CMA compared with those with lesser years (OR=0.39 CI=0.19-0.77). Majority of the FGD discussants observed that human factors such as making use of mobile phone while riding, over speeding and overloading were the major causes of CMA.

Knowledge of safety kits among commercial motorcyclists was high but the use of accident safety kits was poor. Therefore, use of accident safety kits should be promoted among commercial motorcyclists.

Keywords: Motorcycle, Commercial Motorcyclists, Motorcycle accidents, Motorcycle safety kits
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ABBREVIATIONS

CMA:	Commercial motorcycle accident
CMRs:	Commercial Motorcycle Riders
MPH:	Master of Public Health.
MSc:	Master of Science
NAHTSA:	National High way Traffic Safety Administration
OND:	Ordinary National Diploma
LGAs:	Local Government Areas
RA:	Research Assistants
RTA:	Road Traffic Accident
RTI:	Road Traffic Injury
SPSS:	Statistical Package for Social Sciences
USA:	United State of America
WHO:	World Health Organisation

OPERATIONAL DEFINITION OF TERMS

Accident:	Any unintended occurrence that leads to injury and trauma.
Causes:	Perceived causes of motorcycle accident among commercial motorcyclist.
Motorcyclist:	The person using motorcycle for commercial purposes.
Motorcycle:	Motorcycle is a two-wheeled vehicle for transporting one or two riders.
Okada	Local name coined for any commercial motorcycle rider.
Passenger:	The person sitting behind the motorcycle rider.

CHAPTER ONE
INTRODUCTION

1.1 Background of the study

Motorcycle mishaps are common causes of morbidity and mortality for riders as well as passengers. Road traffic accidents constantly claim a significant percentage of human life and globally tends to be one of the most serious public health problem have injuries connected to motocycle accidents, constitute a major but neglected emerging public health problem in developing countries and it significantly impacts the overall road traffic associated injuries (Peden, McGee and Sharma, 2002). In 2002, it was reported that 3,244 motorcyclists died and in 2001 about 65,000 were injured in motorcycle fatalities. (National Highway Traffic Safety Administration, 2004). Fatality rate for motorcyclists dramatically increased from 1992-2002 in the United States (Cohn et al, 2010). In most high-income countries, motorcycle fatalities typically comprise around 5% to 18% of the overall traffic fatalities (Mohan, 2002). Similarly in the Western World the risk of death on motorcycle crash is approximately twenty times higher in comparison to dying from vehicle crash (Peden, 2004; Solagberu, 2006). In India, 27% of road deaths were among users of motorcycles. (Mohan, 2002: Suriyawongpaisal and Kanchanusur 2003: Umar, 2002).

Injuries to the head, following motorcycle crashes dcu to non-use of safety kits such as crash helmet, Eye goggle, protective boat, protective trousers, hand gloves, are a common cause of severe morbidity and mortality (Liu, Ivers, Norton, Boufous, Blows and Lo, 2008). Worldwide, the number of people maimed or killed in road traffic accidents (RTA) each year tends toward an estimate of almost 1.2 million. However, WHO asserted that the figure of injured victims could be as high as 50 million (World Health Organisation and World Bank, 2004). Motorcycle users sustain the most serious injuries leading to death or disability aroundthe head and neck (WHO, 2013a). Two-wheeled motor vehicles are involved in 14% of all traffic accidents occurring in the European Union. This precisely affects over 6000 people annually (Otte, Jänsch, Chliaoutakis, Gilchrist and Lajunen *et al*, 2003) Quite a number of RTA victims spend weeks in hospital after severe crashes and may possibly end up handicapped for life (Sreedharan, Muttappillymyalil, Divakaran and Haran, 2010). Motorcyclists and their passengers are prone to poor visibility when they are moving at high speed and under severe weather. This situation, coupled with non-use of safety helmet or

other protective devices put riders and passengers at more serious risk of Road Traffic Injury (RTI). Motorcyclists, their passengers as well as pedestrians are at far greater risk than drivers and passengers of cars and large motor vehicles. Road safety experts thus refer to them as "vulnerable road users" (Wold Health Organisation, 2004). Motorcycle injuries are among the principal causes of disability and deaths of which its cheif victims are the motorcyclists, passengers and pedestrians in their young reproductive age group (Peden, 2004; Solagberu, Ofoegbu, Nasir, Ogundipe, Adekanye and Abdur-Rahman, 2006). This glitch is rapidly increasing in developing countries basically due to the pace of motorization as well as other factors (Galukande, Jombwe, Fualal and Gakwaya, 2009).

The crash helmet edict came into effect 1st June, 1976 in Nigeria and was further re-enforced 1st January 2006. Regardless of this, numerous motorcyclists still move about without safety helmets and devices. These safety devices which include helmets, wind shield, goggles, protective and reflective clothing should provide comfort, increase visibility, and prevent or reduce injuries in the event of a crash (Motorcycle Safety Foundation Inc, 2005: Motorcycle Safety Foundation Inc, 2002). There have been arguments that motorcycle helmet use, decreases rider vision, increases neck injuries and impair hearing (Motorcycle Safety Foundation Inc 2005: Liu et al, 2008). Impairment of vision with subsequent crash can occur if the motorcyclist is hit by a stone, bitten by an insect or has a gust of wind blown into unprotected eyes causing irritation and inflammation of the eyes with watering. Consequently, in some States in the United State of Ameria, windscreens and eyeglasses are considered legal protection. Windscreens, though, may not provide adequate face and eye protection as wind, insects, dusts and pebbles can be blown behind them (Motorcycle Safety Foundation Inc, 2002). Eye goggles on the other hand are shatterproof but may not seal out wind and dust which may cause watering of the eyes. (Motorcycle Safety Foundation Inc, 2002).

Consequently, helmets, has been proven to provide full-face protection and are considered the best protection (Motorcycle Safety Foundation Inc, 2002). Helmets can also be used with face shield or a pair of goggles. The latter should be impact resistant and free of scratches that can refract light and blur vision. While tinted shield can be used during the day, clear ones should be used for night riding or in conditions of poor illumination such as poorly lit roads that may increase the effect of night myopia especially in younger eyes (Perth and District Advanced motorists, 2001).

The advocated primary preventive measures for reducing the severity of head injuries among motorcyclists and their passengers is the use of the crash helmet (Gannpathy, 2001). In his words, Gannpathy (2001), posits that: this safety measure provides additional protection to the head, and reduces the severity of injury to the brain. Nonetheless, the scenario in Nigeria is such that despite the sporadic futile efforts made to compel motorcyclists adopt the use of the crash helmet, not much is known about its use among motorcyclist, regardless of the anaedotal reports which have revealed that the prevalence of RTA involving commercial motorcyclists is on the increase at an astronomical rate.

Evidently, in Oyo State, in spite of the law, use of helmet and other protective gears are yet to be enforced. The rider and passenger are therefore constantly exposed to potential eye hazards and the possibility of a crash with its attendant complications. Commercial motorcyele accidents contribute Significantly to the number of road traffic injuries and death in Oyo State and Ido LGA. Commercial motorcycle riding was a thriving business in Oyo State and Ido LGA as at the time of this study. The study was therefore focused on the knowledge of motorcycle accidents and utilisation of safety kits among commercial motorcyclist in Ido Local Government Area, Oyo State.

1.2 Statement of the problem

In Nigeria, commercial motorcycles constitute one of the chief modes of transportation and by far, the most common form of informal transport (Okojie, Omuemu and Ighodaro 2006; Arosanyin, Olowosulu, Oyeyemi, 2012). There has been a phenomenal increase in the use of motorcycles for commercial purposes in most cities of Nigeria in the last few years. For example, as at 2008, there were over 120,000 motorcyclists in Akwa Ibom State alone, which is just one of the 36 States in Nigeria (Johnson and Adebayo, 2011). The use of motorcycles for passenger transport gained acceptance and wide recognition in Nigeria after the economic recession of the early 1980s (Owoaje, Amoran, and Ohnofeti, 2005; Ogunbodede, 2008). The lack of adequate and sustainable public transport system combined with poor urban planning in most Nigerian cities created a transport gap for the motorcycles to fill in passenger transportation needs (Arosanyin, Olowosulu, Oyeyemi, 2012).

Fatal head injuries, fractures and bruises sustained as a result of non- use of safety kits remain a public health concern in the State. Motorcyclists are about 35 times more prone to die than passenger car occupants and 8 times more likely to be injured. Also, they have a 7 fold

increase in the accident rate for vehicular person per mile and a 17 fold fatality rate compared with motor vehicles (Makanjuola, Sabitiu, and Tanimola, 2007). Available statistics from the Federal Road Safety Commission reveals that in 2004 there were a total of 14,087 road traffic accidents in Nigeria. Of this figure, motorcycles accidents accounted for 31.5% of all reported Road Traffic Accidents (RTA) Nationwide (FRSC, 2014). Certain factors including non-enforcement of the existing road safety laws, bribery and corruption have been implicated as causing the poor utillsation of safety devices by motorcycle riders in Nigeria and the studies on motorcycle injuries in Nigeria have revealed non-use of protective helmet by all injured accident victims (Ayorinde, *et al*, 2005; Amoran, Owoaje, Giwa and Gbolahan, 2005). Casual observations have revealed that majority of commercial motorcyclists in Ido LGA do not useany protective kists such as crash helmet, carry more than one passenger and overspeding.

A hospital based study conducted in two teaching hospital in South-West Nigeria revealed that none of the 254 motorcycle crash victims admitted to hospitals was wearing a helmet at the time of their collision (Kehinde, Olasinde and Ogini, 2006). In a similar study that examined the peculiarities of motorcycle crash site characteristics in three tertiary hospitals in South-West Nigeria, 95.6% of the motorcycle RTI patient reported none use of crash helmet among respondents (Oluwadiya, Kolawole, Adegbehingbe, Olasinde, Agodirin and Uwaezuoke, 2008). A study conducted by Amoran et al, (2005-2006) reported that practice of road safety measures was low in a rural Nigerian community and none of the respondents use any protective helmet in a cross sectional study of commercial motorcyclist in Igbo-ora, Nigeria. Drinking-driving and non-adherence to road safety rules and regulations, not wearing protective kits such as helmet, goggle, hand glove and driving boot also contributed to the fatality and scourge of accident and injury sustained by both the riders and the passengers.

Ogagaoghene (2013), speaking at the Inauguration of members of association of motorcycle riders in Oyo state, Nigeria, attested to the fact that motorcycle have higher fatality rate per unit of distance travelled when compared with automobiles, this is because motorcycle riders are otherwise refer to as exposed road user. He further stated that motorcycle accidents in Oyo State, Nigeria are caused by the rider"s disobedience to traffic rules and regulations. In the time past, various laws were enacted by Federal, State and Local Governments to curb the excesses of the riders, this includes the National Road Traffic Regulation of 2004 and FRSC

Establishment Act 2007 to mention but few, with all these put in place, it is still disheartening that motorcycle crashes are still recorded daily in Oyo State, Nigeria (Ogungbemi, 2011). Death on the road due to motorcycle accidents are not reducing in spite of all the effort by the road safety commission (FRCN, 2012).

Crucial to this study, is a pointer to the fact that the use of safety kits such as crash helmet, eye goggle, protective boat, florescent jacket' and protective trouser are very beneficial. The safety kits, if properly used, is proven to reduce the physical impact of accidents such as fatal brain injuries, and eye goggle prevent insect from entering the eyes among motorcyclists This study is, therefore aimed at determining the knowledge of motorcycle accidents and utilisation of of safety kits among commercial motorcyclist in Ido LGA with a view to making recommendations for safety measures on our roads to the relevant authorities for proper intervention, documentation and academic reference of the recent findings this study sets to suggest.

1.3 Justification of the study

Motorcycle crashes are common causes of morbidity and mortality for both riders and passengers. Hence to aid prevention and reduction of the severity of injuries sustained through road traffic accidents (RTA) many countries hereby enforce the use of safety devices while riding. Certain factors including non-enforcement of the existing road safety laws have been implicated as causing the poor utilisation of safety devices by motorcycle riders in the developing countries.The availability of information on road safety on Nigerian roads especially by commercial motorcycle riders has been the subject of discussion by road transport administrators, public health and medical practitioners and the media as a result of unsatisfactory performance. The pedestrians have complained of the riding pattern of the motorcyclists, alcoholic drinking pattern, overconfidence, over speeding, effects of bad roads, lack of understanding of road signs, not wearing crash helmet, hand gloves, eye goggle, riding boot are seen as factors influencing road accidents by commercial motorcyclists. knowledge of commercial motorcyclists' on the use of safety kits especially crash helmet, eye goggle, protective trouser, hand gloves and florescent jacket would constitute reliable information needed to institute appropriate health education interventions aimed at promoting universal adoption of helmet use among commercial motorcyclists and their passengers in the study area and elsewhere in Nigeria where use of motorcycle for transport is common.

There is paucity of research on knowledge and utilisation of safety kits among commercial motorcyclist in Ido LGA Oyo State. The outcome of this study would serve as basis for appropriate intervention in the State on the prevention of motorcycle-related accidents, injuries and death; promote using of safety kits that prevent sever injuries which are evident in various statistics as revealed by several literatures. The results are useful for the formulation of appropriate policies regarding safe commercial motorcycling and utilisation of safety kits.

1.4 Research Question

The following research questions were set for the study;

1. How knowledgeable are commercial motorcyclist on the use and utilisation of safety kits in Ido LGA?
2. What is the attitude of commercial motorcyclist on the utilisation of safety kits in Ido LGA?
3. What is the prevalence of accidents among commercial motorcyclist in IdoLGA?
4. What are the causes of accident among commercial motorcyclist in IdoLGA?

1.5.1 Broad Objective.

The broad objective of the study was to determine the knowledge about motorcycle accidents and utilisation of safety kits among commercial motorcyclist in Ido Local Government Area, Oyo State.

1.5.2 Specific Objectives

The specific objectives of this study were to;

1. Assess the knowledge of commercial motorcyclist on the utilisation of safety kits in Ido LGA?
2. Assess the attitude of commercial motorcyclist on the utilisation of safety kits in Ido LGA?
3. Assess the prevalence of accidents among commercial motorcyclist in Ido LGA?
4. Identify the causes of accident among commercial motorcyclist in Ido LGA?

1.6 Hypotheses

The following hypotheses were set based on the study rationale, literature that;

1. There is no association between respondents' level of of educational attainment and accidents in the last six months among commercial motorcyclist.
2. There is no association between respondents years of riding commercially and prevalence of CMA among commercial motorcyclist
3. There is no relationship between respondent's attitude and utilisation of safety kits (helmet) among commercial motorcyclists.
4. There is no association between utilisation of safety kits (helmet) and prevalence of CMA among commercial motorcyclist.
5. There is no relationship between knowledge of safety kits and years of riding commercially among commercial motorcyclist.

CHAPTER TWO

LITERATURE REVIEW

2.1 Motorcycle as a means of Transportation in Nigeria

Transportation involves conveyance of physical items and people from one place to another (Pedenet *al*, 2004). A motorcycle is an engine powered means of transportation, with two wheels and designed for carrying a maximum of two persons. An estimated 70 percent of Nigerian cities with over 250,000 inhabitants rely on motorcycles for intra-city public transport services (Cervero, 2005). As far back as 1998, the use of motorcycle for commercial purposes began to appear on the streets of cities such as Lagos (Adesanya, 1998).Motorcycle is one of the major means of transportation in Nigeria today and by far, the most common form of transport system in the community. Motorcycle performs a very special role in many Nigerian towns as a means of public transportation. This means of transportation is called by many different names in many parts of Nigeria."Okada" in the West and South-South, "Nnaga" in the South "Achaba" and "Going" in the North.

According to Kanayo (2008), commercial motorcycle riders are known by different names in Nigeria. In Calabar and Uyo, they are fondly called 'Akauke', while in Enugu and Aba they are called 'Ina-aga'. 'Okada' is the most popular name and it named after 'Okada' Town near Benin, Edo State where motorcycles are used for shuttle services between Benin City and 'Okada' village. The use of commercial motorcycles began in Calabar, the capital of Cross River State of Nigeria in the early 1970s. Apart from Calabar, the use of motorcycles for public transportation had gradually spread to other parts of Nigeria. The use of 'Okada' for commercial purposes was not known until late 1980s when the first attempt was made to in 'Okada' town following the establishment of the Recreation Center and World Lawn Tennis Tournaments in the community. The use of motorcycles for public transportation had gradually spread to other parts of Nigeria in the late nineties.

A combination of factors can be identified as responsible for the use of motorcycles as means of intra-city transport in Nigeria. Its use for commercial services grew after the Nationwide retrenchment of civil servants in 1975/76 (Adesanya, 1998). One important factor was the rapid rate of urbanisation in the face of inadequate means of transportation. In Ibadan for example, as the city expanded in the direction of Omi- Adio, Apata, Alakiya, Egbeda, Ona-

Ara. Motorcycle became the major sources of transportation for general Public. Factor that contributed to the emergence of Motorcycles for commercial transportation in Nigeria was the high rate of unemployment in the country in the 1980s. This was a fall-out of the downturn in the Nigerian economy at that period. As part of its efforts to manage the economic problems of the time, the civilian government under Alhaji Shehu Shagari (1979-1983) introduced severe austerity measures which resulted in the mass sack of workers at the Federal and State levels between 1981 and 1983. The General Muhammad Buhari Military regime that succeeded the Shagari administration in 1983 also pursued a policy of staff rationalization in the civil service. For example, in July 1985, more than 6,000 Federal workers were sacked across the Nation. Those who lost their jobs desperately sought for employment and many found a way out by employing themselves in the Motorcycle commercial business.Motorcycle transport possesses several unique features as narrow width, small size, and high power to weight ratio and intuitive steering. According to (Lee, 2007), it provides freedom in a traffic stream and causes some characteristics behaviour pattern in mixed traffic flow.

2.1.2. *Benefits of commercial motorcycle as a means of transportation*

The motorcycle is regarded as an indispensable means of transportation in some areas, even in urban settings. To the fast businessman, it is most reliable means of avoiding the traffic 'jam' and a way of enjoying the thrill of a motorcycle ride by the adventurous. According to Cervero (2005), commercial motorcycle riding has been described as "a unique experience" by regular passengers and tourists. The distribution of motorcycle in the total number of trips made in most of the urban centres in the world is quiet substantial, particularly for low income countries (Gbadamosi, 2006).

The choice of motorcycle as a popular mode of urban transportation in Nigeria can be attributed to its cheap cost of buying a new one as well as low cost of maintenan. Besides, motorcycles possess a number of unique features such as narrow width, small size, high power to weigh ratio and intuitive steering which make them much more flexible tomaneuver especially on rough urban roads than other motorized modes of transport. Lee (2007) has observed that motorcycles provide freedom in a traffic stream. In order to get to their destinations at a short possible time, their operators generally do not obey traffic rules. Commercial motorcyclists have little regards for other road users whichoften lead to traffic accidents on urban roads (Gbadamosi, 2006). A review of some of the previous studies on the

operations of commercial motorcyclists in Nigeria has focused attention on its importance as an alternative means of transport for inter-rural and rural-urban travel in order to meet the travel demands of rural population (Oyesiku andOdufuwa, 2002: Adeniji, 1987), as well as the affordability, maintenance cost and willingness of the society to embracethe use of motorcycles for public transport compared to the commercial vehicles (Central Bank of Nigeria, 2006: Fasakin, 2001).

Rietvled (2001) identified the following as major factors that have attracted the use of motorcycle as means of public transport in many locations:

1. Cheapest means of transportation
2. Provision of door-to-door transportation services
3. Biking and walking infrastructure have usually has a very high spatial penetration
4. They complement the concept of multimodal transport chain.

Globally, there is an upward trend in the number and use of motorcycles both for transport and recreational purposes (WHO, 2006). Indeed, most of the growth in the number of vehicles on the world's road is as a result of an increasing use of motorcycles. In the United States of America, the number of registered motorcycle increased from 600,000 units in 1961 to 3.3 million in 1971, a 450% increase within a decade (Adegbehingbe, Oluwadiya and Adegbehingbe, 2004). In India, 69% of the total number of motor vehicles consist motorcycles, considerable higher than in high-income countries (Mohan, 2002). Asian countries have experienced a considerable rise in the number of motorcycles on their roads (WHO, 2006). This pattern was also recognized in Nigeria, many towns and cities in Nigeria are experiencing similar surge in the use and demand for commercial motorcycle as a means of public transportation. Archibong, Ikpi, Ikpeme, Asuquo, Umoh, and Akpan, (2003) confirmed that, motorcycles popularly known in Nigeria as "Okada" have become the popular means of intra-city commercial transportation in almost every community in Nigeria. According to Adegbeingbe et al (2004) the number of motorcycle increased from 144,480 to 284,124 between 1976 and 1981, an increase of almost 200% within 5 years.

Gbadamosi (2006) observed that the number of registered motorcycles increased sharply from 218,802 in 2001 to 288,474 in 2004. The reason behind the reported increase in number of commercial motorcycles is the fact that motorcycles are sold at relatively cheaper prices than other vehicles and good earnings from the motorcycle which encourages more people

especially youths to join this business (Solagberu, Ofoegbu, Nasir, Ogundipe, Adekanye and Abdur-Rahman, 2006). Not surprisingly, the number of motorcycle riders continues to increase both in developed and developing countries. Motorcycle which has been in use in other parts of the developing world especially in Asia as a commercial transport provided a ready-made solution to the high rate of urban transportation demands. In recent times however, the frequent occurrence of traffic accidents caused by commercial motorcyclists in urban centres in Nigeria has led to a National debate on the suitability of this mode of transport in the urban space, particularly on the safety of the operators and their passengers. For example, despite the use of head helmets, the Lagos State Government and the authority of the Federal Capital Territory have banned the activities of commercial motorcyclists on some of their roads due to increased reports of traffic road accidents and day light robbery perpetrated by commercial motorcyclists (Musilimu and Oluwole, 2014).The reason has been associated with poor economic status and lack of employment opportunities for unemployed youths.

2.1.3 Dangers of commercial motorcycle as a means of transportation

The most critical injuries to motorcyclists in crashed are head injuries, followed by upper Norse and leg injuries (Haworth and Schulze, 1996). In European countries, head injuries contribute to around 75% of the deaths among motorcycle riders, while in some low-income and middle-income countries head injuries are estimated to account for up to 88% of such fatalities (Umar, 2002). The social costs of head injuries for survivors, their families and communities are high, because they frequently require specialized or long term care. Several studies consider head injury as the commonest cause of fatality in RTA victims (Santikam, Santiisarakul and Rujiviped 2002; Adegbehingbe *et al*, 2004; NHTSA 2006; Levin and Peroonti, 2009).

Head injuries result in higher medical costs than any other type of injury; the injuries exert a high toll on a country's health care costs and its economy (Blincoe, 2002). A prospective study conducted by the National Institute of Mental Health and Neurosciences, in Bangalore, India revealed the severity of head injury leading to death , incidence of skull fracture and occurrence of post-traumatic epilepsy were higher among those who were not using helmet as compared to those with helmet. Consequently, the duration of hospitalization and the economic cost of managing head injuries were more for non-helmet wearing group (Gururaj, 2001); Studies have shown that in most countries, motorcycle riders tend to

sustain multiple injuries to the head, chest and legs. Head injuries contribute to most cases of deaths, while leg injuries contribute to most cases of long term disability (Santikam et al, 2002). Tho facilities and the intervention necessary to improve survival are very expensive and often unavailable especially in resource-poor countries, hence prevention is the most desirable or effective intervention (Adesunkanmi et al, 2000).

Drive's negligence is another major contributing factor to accidents and these includes reckless driving, improper overtaking and disregard for traffic light. Such causes may have had alcohol consumption as an underlying factor (Odero et al, 1997; Nakahara et al, 2005; Clarke et al, 2007).

In Thailand, it was reported that motorcycle-related crashes accounted for the majority of injuries and death from RTAs, contributing factors includes alcoholic consumption, invalid driver's license, inexperience and age of the drivers, as they were found to be a common characteristics in motorcycle accidents than in accidents by other vehicles (Swaddiwudhipong. et al 1994; Ichikawa, Chadbunchachai and Marui, 2003; Haque, Chin and Huang, 2009).

In a study conducted at the accident and emergency unit of Obafemi Awolowo University Teaching Hospital, Ile-Ife, Osun State, Nigeria on motorcycle associated ocular injuries; RTIs constitute 31.6% of all accident and emergency anendance and out of these, 12.5% were injured patients of motorcycle crashes (Adegbehingbe, Oluwadiya and Adegbeyingbe, 2004). Adegbehingbe et al (2004) also noted that the proportion of RTI victims made up of motorcycle crashes published in literature ranges from 9.4% to 35%. In another study carried out by Umebese and Okubgo (2001) on motorcycle accidents in Benin, motorcycle injuries constituted 14.4% of the total number of RTAs. Children and young people within ages 5 and 25 are highly vulnerable to RTAs (The Punch, 2007).

Factors responsible for incessant rise of motorcycle accidents in Oyo State as noted by Oyo State Sector Command includes the following: to traffic rules, overloading by carrying more than one passenger, over speeding running mode on a curve due to excess speed or under cornering, riding under the influence of alcohol which affects the riders judgement, riding bikes with worn-out tyres, brake failures accounted for motorcycle accident due to lost of control, lack of accessories like rear mirror, functional horn and head lamp, route violation facing on-coming vehicles that is riding against the traffic and riding motorcycle without

crash helmet which account s for 95% permanent injury and death of okada accident victims (Ogagaoghene, 2011).

The predominance of males in road-injury statistics is a common finding globally (Peden, Scurfield and Sleet, 2004; Nantulya and Reich, 2003). This results in 70% of the potential years of life lost in many countries (Krug, Sharma and Lozano, 2000; Hyder, Amarch, Garg, and Labinjo, 2005). In a review of epidemiological studies of RTAs in developing countries, the most common age range nffected was between 15-40 years, and a predominance of male population.The rapid growth in the use of motorcycles in many low nnd middle income countries is being accompanied by a considerable increase in the number of head injuries and fatalities that will continue to increase if the trend is unchecked (WHO, 2006). A survey which examined the perceptions of risk associated with the use of motorcycle as public transport among commuters in three cities (Ado-Ekiti, Ile-Ife and Ondo) of the southern western Nigeria revealed that 40% ofthe respondents felt that commuting whhin the cities on motorcycle is unsafe (Olawole, Ajala and Aloba, 2010). Commercial motorcycling was reported to be valued mainly because they were fast and readily available

Road Traffic Injuries (RTIs) are major public health problems and they constitute the leading cause of death and injury globally (Worley, 2006).Since 1972, the overseas, unit of the United Kingdom Transport and Road Research Laboratory (TRRL) bas been engaged in a programme of research on road accident in the developing countries. Results indicate that fatality rates are higher in comparison with those in developed countries (Ameratunga, Hijar, and Norton, 2006). Many developing countries have experienced a worsening situation, particularly over the last five years.Statistics associated with motorcycle injuries are getting worse. The National Highway Traffic Safety Administration's 2007 report on motorcycles shows that the number of fatal motorcycle accidents was on the rise in recent years both fatality and injury rates have steadily increased. This proportion reflects the combined effects of several important factors that include the relatively low ownership and use of motorcycle in many developed countries, and the relatively high risk of these motorcycle being involved in fatal accidents. This risk is much higher for motorcycle than for vehicle travel (NHTSA, 2004).

2.2 Prevalence of motorcycle accident and related injuries

Motorcycles have a higher rate of fatal accidents than motor vehicles (National Highway Traffic Safety Administration (2007). United States Department of Transportation data for 2005 from the Fatality Analysis Reporting System shows that for passenger cars, 18.62% fatal accidents occur per 100,000 registered vehicles. For motorcycles this figure was higher at 75.19% fatal accidents per 100,000 registered vehicles (four times higher than for cars) (United States Department of Transportation, 2006). The same data shows that 1.56 fatalities occur per 100 million miles travelled for passenger cars, whereas for motorcycles the figure was 43.47% (28 times higher than for cars). Motorcycles accident rates have increased significantly since the end of the 1990s, while the rates have reduced for passenger cars. On average these risks are much higher for motorcycle than for vehicle travel. In 2006, motorcyclists are about 35 times more likely to die in a traffic crash than motor vehicle drivers and eight times more likely to be injured (NHTSA, 2007). According to WHO (2004), in other low-income and middle-income countries, lack of high quality road safety data means that precise levels of motorcycle rider fatalities are still not known.

This risk had increased even further over the last years to the disadvantage of motorcyclists. The Americas bear 11% of the burden of road traffic injury mortality (WHO, 2002). Currently motor vehicle accidents rank 9th in order of disease burden and are projected to be ranked third in the year 2020. In 2005, there were over 23,000 motorcyclists (including moped riders) involved in injury road traffic crashes in Great Britain and 6,142 of these riders were killed or seriously injured (Department for Transport, 2006).

Cases of RTIs ranked as the 11th leading cause of death in the world in 2002, with developing countries bearing a large share of the burden, accounting for 85% of annual deaths and 90% of the disability adjusted life years (DALYS) lost because of road traffic injury (WHO and World Bank, 2006).

Research has shown that in India, 452,900 people were injured due to road traffic injuries (RTI) in 2006 and motorcycle accounts for 17.8% (Bureau, 2006). Fatalities due to road traffic injuries are estimated to increase by 150% by the year 2020 (Koplis and Cropper, 2003). Powered two wheel vehicles also come in diverse forms and are used for a range of purposes in different parts of the world (Haworth, 2012), which naturally impacts upon crash risk for motorcyclists of different nations. It is estimated that 5.8 million people died worldwide from motorcycle injuries in 1998, corresponding to a rate of 97.9 per 100 000

population. Injuries are the leading causes of death in all age groups and for both male and female (Krug, Gyancndra and Lozano, 2000). Among the first six, 15 leading causes of death in the world for persons aged 15-44 years; road traffic injuries which are self-inflicted are the leading cause (Krug, Gyancndra, and Lozano, 2000).The implication of this is that it could affect youths and young adults towards the growth and development of their Nations and the World at large.

Studies in Asia suggest that motorcyclists have high rates of injury in countires such as Korea, China, and Thailand, accounting for a high proportion of seriously injured road users (Dandona and Mishra, 2004 and Zhang, Norton, Tang, Lo, Zhuo, and Geng 2005). Motorcycle related deaths in China are 16 per 1,000,000 annually (Hyder and Peden, 2003). In India, 27% of road deaths were among users of motorcycles (Mohan, 2002; Suriyawongpaisal and Kanchannusur 2003: and Umar, 2002). Hospital records in Thailand revealed that 75-80% of RTI and between 70-90% of road traffic mortality were among motorcyclists. Similarly, motorcycle accidents account for 60% of RTI in Malaysia (Mohan, 2002; Suriyawongpaisal and Kanchannusur 2003: and Umar, 2002). In China, motorcycle owneiship between 1987 and 2001 grew rapidly from 23% to 63% with a corresponding increase in the proportion of traffic fatalities sustained by motorcyclists rising from 7.5% to 19%, with a population based death rate of 16 per million per year from motorcycle injuries (Zhang, Norton, Tnag, Lo, Zhuo, and Geng, 2005).

In India, over 80,000 persons die in the traffic crashes annually, over 1.2 million injured seriously and about 300,000 disabled permanently. In India, for individuals more than 4 years of age, more life years are lost due to traffic crashes than due to cardiovascular diseases or neoplasm (Mohan 2004; Mohn and Varghese, 2002). Another study revealed that road traffic injuries (RTIs) are major public health problems and they constitute the leading cause of death and injuries globally (Worley, 2006). Another finding also stated that globally 1.2 million people die annually on the roads as a result of road traffic crashes averaging 3,242 deaths daily, while 20-50 million people suffer some form of injuries or disabilities by estimation (WHO, 2002), these figures are expected to increase by 65% between 2000 and 2020 with an increase by 80%, in the low and middle-income countries. It is projected that by the year 2020 road traffic injuries will rank third as the leading cause of disability adjusted life years (DALY), in the year 1990 it was ranked ninth in the world (WHO, 2002).

Morbidity and mortality from commercial motorcycle are well known public health problems in Africa. Moreover, motorcycle crashes accounted for more than 50% of traffic-related deaths in Malaysia and Taiwan (Radin-Umar, Mackay and Hills, 1996) and 80% of traffic related injuries in Thailand (Ichikawa, Chadbunchachai and Marui, 2003).

Significantly, In Nigeria, like most developing countries, mortality and mobility following motorcycyle accidents have been on the increase (Sholagberu, Duze, Adekanye and Odelowo, 2000). Hence it can be safely stated that the main victims involved are the motorcyclist, passengers or commuters in their reproductive age (Solagberu, 2006). Of noteworthy is the fact that children and young people within ages 5 and 25 are highly affected. Injuries sustained by a rider or passenger of a motorcycle as a result of accidents are the second most common types of morbidity and mortality in road traffic injuries. Moreso, Pedestrians could also sustain such injuries when they are crashed into by motorcycles (Adegbehingbe, Oluwadiya and Adegbeyingbe, 2004). The statistics mirror the global death toll on Nigeria roads which is conservatively and currently put at 1.2 million annually (Adegbehingbe et al, 2004).

The reported prevalence of motorcycle injuries varies around the world, from 22.8% in China (Zhang *et al*., 2004) to as high as 62% in Vietnam (Nantulya and Reich, 2002). In Nigeria, prevalence of motorcycle injury ranging from 12.8-60% have been reported in different studies (Okedare, 2004; Nzegwu *et al*., 2008; Anlekan and Sydney, 2003; Okeniyi *et al*., 2005). Long established patterns of injury risk suggest that the lower limbs are the body parts most likely to be injured in motorcycle accidents. In Lagos, Nigeria, after the introduction of commercial motorcycles, incidence of reported cases of road traffic accident at Igbobi Orthopedic hospital had a 3000% increase in number of patients with fractured limbs (Idika and Sanni, 2004).

In a comparative study of rural-urban commercial motorcyclists conducted in Oyo State, Nigeria, over speeding was identified as a common cause of RTA by 28.2% of the motorcyclists in the rural and 37.3% of the motorcyclists in the urban area (Sangowawa, 2007). Use of excessive speed is therefore a common cause of motorcycle accidents. Thorough reviews of previous studies in Nigeria have shown that limb and head injuries are the commonest causes of morbidity and mortality in motorcycle injuries (Ekere and Ibeanusi, 2003; Oluwadiya *et al*., 2004). In a study conducted at the Emergency Unit of Obafemi

Awolowo University Teaching Hospital, Ile-Ife, Osun State, Nigeria on ocular injuries, RTIs constitutes 31.6% of all accidents and emergency attendance and out of these, 12.5% were injured patients of motorcycle crashes (Adegbehingbe, Oluwadiya and Adegbehingbe, 2004). In another study carried out by Umebese and Okukpo (2001) on motorcycle accidents in Benin, motorcycle injuries constitute 14.4% of the total number of RTIs. Majority of the injuries sustained in the motorcycle accidents involve the extremities (67%), especially the lower limbs (Asogwa, 1999b).

Reports have shown that every day about 300 people die and 30,000 people on the world's roads since 1972 (Murray and Lopez, 1991). The overseas unit of the United Kingdom transport and road research laboratory (TRRL) has been engaged in a program of research on road accident in developing countries result indicates that fatality rate are higher in comparison in developed counties (Ameratunga, Hijar, and Norton, 2006). Many developing countries as experienced a worsening situation, particularly over the past five years.

Motorcycles have a higher rate of fatal accidents than motor vehicles (National High way Traffic Safety Administration, 2007). United state department for transportation data of 2006 for the Fatality Analysis Reporting System shows that for passengers car 18.62 fatal accidents occur per 100,000 registered vehicles for motorcycles this figures was higher at 75.19% fatal accidents per 100,000 registered vehicles (four time higher than for cars) (United State Department for transportation, 2006).

In the year 2006 motorcyclist predicted to be about 35 times more likely to die in traffic crash than motor vehicle drivers in few years to come. in another literature review on a survey of 'Okada' customers in Akure also revealed passengers' concerns over safety-61% felt operators drove too fast, and 31% said that they drove too recklessly (Cervero, 2005). One of the negative side effect of Motorcycle as a means of transport is the risk of injury, especially head injury (Naddumba, 2004).The report of the National High way Traffic Administration (2002) on motorcycle shows that the number of fatal motorcycle accident was on the increase in resent time both fatality and injury rate have increased.

2.3 Causes of accidents among commercial motorcyclist

Akinlade (2004) noted that road traffic accidents have been recognized as important health problems in both developed and developing countries. Motorcycles accident is believed to affect the quality of life and have major social and economic consequences. It causes may be a combination of human errors and failures, poor road signs, adverse road conditions, and vehicle defects.

2.3.1 Alcohol Consumption

It is important to mention that alcohol use has remained a significant factor in motorcycle accident. Study shows that 49% of motorcycle crash deaths in USA police reports were attributable to alcohol use, in contrast to 26% of other motor-vehicle crash deaths (Koepsell, *et al*, 2003).Thus, Commercial Motorcyclist tends to resort to alcohol to boost their energy requirements for optimal performance. Alcohol consumption is well known to impair driving and riding performance and is implicated more frequently in fatal crashes than non - fatal crashes (Sadok, 2011).

The FRSC have given clear instruction on road safety in a booklet 2008 edition, Nigeria Highway Code; that motorcyclists and motor vehicle should not drive or ride after the consumption of alcohol (FRSC, 2008). Maximum blood alcohol level for riders and drivers is 80mg/100mls or 0.08% of blood alcohol content (BAC). According to FRSC Act (2007), alcohol affects vision, judgment; it also reduces coordination and slows down reaction. It also reduces riding stability even when taken below the legal limit so everybody who drinks alcohol should not ride and not drive (do not drink and drive). However, given what is known about the effects of alcohol, the demands of motorcycle riding, and the vulnerability of motorcyclists to injury, it is obvious that riders are extremely vulnerable to the effects of alcohol. Finally, it has been well established that alcohol related motorcycle accidents occur more frequently at night, at weekends, in rural areas and as single vehicle accidents (Elliott et al, 2003).

In a study by Haworth (2005) posited that in more than half of motorcycle fatalities, alcohol use was the key ingredient, and that significantly higher levels of alcohol use are attributable to motorcycle riders than car drivers. Indeed the leaders of commercial motorcyclists association in Nigeria admitted complicity of their members regarding use of intoxicant and

that most commercial motorcycle accidents were traceable to use of intoxicants (Adako, 2007).

Another study conducted by Kochar*et al* (2002) reported 28.3% of fatal RTA has a history of having consumed alcohol within 6 hours before the accident. Drinking motorcycle riders are more likely to involve in crash than non-drinking riders. Bednar,Billheimer, McRea and Sabol*et al* (2000) show that motorcycle operators involved in fatal crashes have higher intoxication rates than operators of all other motor vehicles in the USA. In another study it was found out that the most important aspect of the human factor are the age of the motorcyclist, medical fitness of the motoreyclist, alcoholic consumption pattern, fatigue, mental status and educational level (Oladepo and Brieger, 1986; Odero *et al*, 1997; Lin *et al*, 2003; Sexton *et al*, 2004; Elliot, Baughan and Sexton, 2007).

Motorcycle accident and injuries of both the operators and passengers have not received the attention they desire because of lack of data of local accident and injuries and public policy responses to this epidemic have been muted at Local, State and Federal levels (Solagberu, 2006).Various factors are associated with accidents including high speed driving and reckless driving. Driver's negligence is another major contributing factor to accidents and these includes reckless driving, improper overtaking and disregard for traffic light. Such causes may have had alcohol consumption as an underlying factor (Odero *et al*, 1997; Nakahara *et al*, 2005; Clarke *et al*, 2007). Injuries arising as a result of road crashes are a major global health and developmental concerns, which require committed efforts at prevention. Use of alcohol while driving is also a common practice among motorcyclists. In Nigeria, in a study done in Ondo State among motorcyclists, up to 30% of them engaged in drunk riding (Okedare, 2004) while another study in Oyo State stated that 20.4% of motorcyclists reported current use of alcohol (Sangowawa, 2007).

According to Haworth *et al*., (2008) the factors contributing to crush occurrence and injury related to motorcycle accidents include: Being young, Inexperience, riding a borrowed motorcycle, Consumption of alcohol, curves, Slippery or uneven surfaces In Nigeria, motorcycle accidents are said to be caused by over-speeding, wrong overtaking, bad roads, sudden mechanical defects and alcohol intake as major factors.

Use of alcohol, cigarette smoking, and psychoactive substance abuse impair the judgment of the drivers and their ability to correctly interpret events (Ngim and Udosen, 2007). Alcohol use is a risk factor for road traffic accidents and fatal injuries (Jou, Yeh and Chen, 2012; Schneider, Savolainen, Van-Boxel and Beverley, 2012; Mir, Khan, Ahmed and Abdul Razzak, 2012). Evidence concerning alcohol related motorcycling accidents is mixed. Some studies have shown that only a minority of motorcycle accidents are alcohol related. However, other studies too have shown that a high proportion of motorcycling accidents are alcohol-related (Sexton et al, 2004).

A study conducted by Elliott et al, (2003) on alcohol consumption among the motorcyclists reported that 32% of motorcyclists were riding under the influence of alcohol is at the risk of to endanger themselves on the road and to be involved in an accident at higher speeds. A study conducted by Oginni et al, (2007) also found that 30% of motorcyclists were riding under the influence of alcohol.

The various reasons for substance use include: to enhance performance while driving, keeping awake, suppression of fatigue, and peer group effect are additional factors influencing psychoactive substance use among motorcycle riders (Ngim and Udosen, 2007; Muazu, 2007; Odejide and Olabisi, 2004)

2.3.2 Conditionof Roads

In another study on the same subject matter from the public health point of view; according to Taiwo (2007), most drivers take for granted the ability of their automobile to handle minor road hazards such as pot holes or rail road tracks, these minor road hazard are major problems for motorcycles because these hazards may require sudden changes of lane position and direction. Accidents due to motorcycles riding especially in developing countries like Nigeria increase every year due to the fact that the motorcyclists do not follow the traffic rules and they in their mentality believe they are "the king on the roads" (FRSC, 2007). Further stated that motorcycle crashes are more likely to occur on certain times especially raining seasons. In Nigeria, is a season for motorcycle accidents because of the filled pot holes with water and the slippery surfaces of the roads. The same body has identified road defects as causal factor of motorcycle accident in Nigeria, as a result of the various pot holes and wobbles motions on deformed roads, the motorcyclists' lose control of their motorcycles and collision with oncoming vehicles may occur. Often factors responsible as identified by

FRSC (2007) include brake failure; control of the motorcycle is lost when the brake fails and thereby resulted in an accident.

The description of the motorcycle as the most dangerous of all motorized vehicle for transportation can be attributed to its nature and design e.g. absence of airbags to reduce impact in the event of a collision and therefore riders and passengers alike are vulnerable victims of road traffic crashes. In terms of miles covered in comparison, with other motorized vehicles riders are prone more to injuries and death by 8 and 34 times respectively (NHTSA, 2007). Another environment dependent factor is the type of road which affects the occurrence of an accident. The road characteristics given in the police report in the Philippines include straight or flat, curved, inclined, curved and inclined, on a bridge and other type of roads (NHTSA, 2007). A study in the United States estimated probabilistic models of motorcyclists' injury severities in single and multi-vehicle crashes. Results suggest that road crashes occurring on vertical or horizontal curves, are significantly likely to contribute on incapacitating injuries (Savolainen and Mannering, 20

2.3.3 Poor conspicuity of motorcycles

A further factor that has been proposed to influence the increased risk for motorcycle crashes is when motor vehicle drivers fail to observe motorcyclists in their path. This problem is particularly evident at intersections, as vehicles emerge and cross the path of the motorcyclist who may have priority in regards to right of way (Royal Society for the Prevention of Accidents, 2001). Additionally, motorcycle riders are often injured when passenger vehicles change lanes into the path of motorcyclists and do not see them. It has been proposed that failing to detect or recognise motorcycles is the most common cause of motorcycle collisions (Haworth *et al.*, 2006). This may be because motorcycles are smaller than other types of motor vehicles, and thus it is harder from drivers to see them (RoSPA, 2001).

2.3.4 Age and Experience

Age and inexperience have been proposed to be major contributors to motorcycle riders' increased presence in injury and fatality statistics. Research continues to demonstrate that new riders have more crashes per year than experienced riders, although it should also be noted that younger riders (both new and fully licensed) have more crashes per year than older drivers (Haworth *et al.*, 2006). This suggests that both age as well as experience is important contributory factors to motorcycle crashes. However, it remains less clear as to what extent exposure contributes to crash risk, although researchers have suggested that these three factors are likely to be inter-correlated (Haworth *et al*, 2006).

More recent research has demonstrated that younger male riders are more likely to disobey traffic signs and regulations and have a higher tendency towards negligence of the potential risks of riding (Chang and Yeh, 2007). Other research has found that younger drivers have a stronger propensity for risky behaviours and are more willing to break the law and violate the rules of safe riding behaviours (Lin, Change, Pal, and Keyl, 2003). Vulnerable road user groups. Whereas Singh and Dhattarwal (2004) has also observed that the commonest age group involved 21-30 years (27.3%) followed by 31-40 years.Young drivers may be temporarily distracted by factors that are beyond their control, such as roadside features, or voluntary factors such as mobile telephones (Nnaddumba, 2004). Younger riders aged 16-24 years and older riders aged 25-54 are the fastest growing cohort among serious crashes (Haworth et al, 2006).

Another vulnerable driving group is older drivers, and this group represents the largest growing cohort of the Australian driving population. According to predictions by the Australian Institute of Health and Welfare (2001), the population of Australians aged over 65 years of age is anticipated to double from 12.5% in 2000 to 25% in 2021. This follows the global trend of aging population, especially amongst developed countries such as the United States and Europe.The same study further shows that older drivers who have returned to riding after a long absence have a higher crash risk per distance travelled than older drivers who have continued to drive and remain licensed (Haworth and Multihult, 2003). However, these figures are influenced by registration rates, as motorcycles that become involved in crashes may not be registered, and not all registered motorcycles are ridden on the road at all times (Haworth *et al.*, 2006).

2.3.5 Environmental Hazards

There are a range of other factors that may increase the risk of motorcyclists to be involved in accident. Although this assessment of risk is complicated as motorcycle fatalities often involve multiple impacts e.g. ground and road barrier (Sexton et al. 2004). Firstly, it is noted that two wheeled vehicles are less stable than four wheel vehicles (Haworth *et al.*, 2006). From the above statement, it has been suggested that braking effectively is more difficult on motorcycles due to the separate nature of the front and rear braking systems (Motorcycle Safety Foundation, 2005).

The road surface and other environmental hazards are important factors that also increase crash risk for motorcyclists. Road surface factors vary considerably and can include unclean roads or lose material, poor road condition, poor road markings and horizontal curvature of the road (Haworth *et al.*, 2006). Other fixed environmental objects also remain a considerable concern for motorcyclists. For example, a study by Sexton et al (2004) that examined the fatality risk of motorcyclists either hitting the ground or road side objects found that fixed objects (e.g. guard rails) are more harmful than the ground. The study examined 3,600 fatal motorcycle crashes reported in the Fatality Analysis Reporting System (FARS) between 2004 and 2008 and concluded that hitting a guard rail was 7 times more likely to result in a fatality than hitting the ground, and collisions with trees were 15 times more likely to result in a fatality than hitting the ground. Not surprisingly, narrow objects such as trees have a greater fatality risk compared to guardrails (RoSPA. 2001)

The motorcyclists spends more than 10 hours daily on the road with direct exposure to various environmental hazards including road traffic accidents and associated accidents injuries of various levels of severity. (Alti-Muazu and Aliyu, 2008; Salako, Ablodun and Sholeye, 2013). The long hours they spend on the road daily brings additional demand for extra energy to perform their work.

2.4 Risk-Taking among commercial motorcyclists

Risk taking has also been proposed as another area of concern for motorcyclist that increases the likelihood of crashes. For example, motorcycle riding offers both vulnerability and excitement, and it is not surprising that this endeavor attracts individuals who are prone to take risks (Haworth *et al.*, 2006).

The exist-taking behaviours among motorcycle drivers may include speeding, drinking while riding, not using a helmet while riding, unlicensed riding, running yellow lights, and driving with too little headway. Areas in the country which have continued to witness increase in the level of motorcycle operation have also had to contend with its attainment problems in terms of high risk exposure of urban commuters to traffic accidents due to the excesses of motorcycle riders. The situation is worsened by the uncoordinated nature of their operation and the operators' flagrant disregard for traffic rules. Their dangerous operational attitude has increased the inevitable record of road traffic accident fatalities recorded in Nigeria (Gbadamosi, 2006).

According to Yau (2003) considered five factors, namely, the month of occurrence of the accident, day of the week, time of the accident, street lighting conditions and weather conditions. Results revealed that the day of the week and time of the accident are important factors affecting injury severity. It was also found that motorcycle accidents have higher risk during weekends than weekdays because motorcycle drivers driving on weekends may exhibit risky driving behaviours. Furthermore, motorcycle accidents are also more likely to happen between night and midnight. Perhaps during this time, the driver is more susceptible to driving at fast speeds due to the small number of vehicleson the road (Yau, 2003).

Oginni *et al.*, (2009) reported that crashes occurred in the early months of January-April with a peak incidence in the month of April. In another study by Ogunmodede and Akangbe (2012) found out that most of the crashes occurred during the months of April-September in the rainy season with a peak incidence in the month of April. Accidents occurring as a result of road crashes are a major global health and developmental concerns, which require committed efforts at prevention. In Austria, a high income country, deaths from motorcycle crashes was 17% amongst road users with motorcycle registrations being 11% of the total vehicles (WHO, 2009).

A survey from Epidemiology Department of Umeå University conducted by Asongayi (2012) quoting Kraus (2002) stated that head injury is the most common in fatal motorcycle crashes and it contributes to about one-half of all motorcycle deaths. Another study shows that femoral fractures are the most common long bone injury in motorcycle deaths (Ankarath, Giannoudis, Barlow and Bellamy *et al*, 2002). The society has had enough wounds, fractures

and death as a result of some preventable accidents involving commercial motorcycli lstargely due to negligence and recklessness.

Another literature reveals that 26.32% cases died on spot (Archana et al, 2005). Singh and Dhattarwal (2004) also reported a lower incidence of 15.4% died on the spot (Archana, Sinha, Pathak, Aparajita, Jolly, Kapoor, Susheel and Sanju, 2005). Another study reveals that a total of 52.21% of RTA victims have been admitted in the hospital whereas 21.47% have died on way to hospital. Of the 496 admitted victims only 106 have received specific treatment including major surgeries (Archana et al, 2005).Mohan and Varghese (2002) noted that in India, pedestrians, cyclists and motorcyclists are 20.6% the most vulnerable road users constituting over 70-80% of all road traffic deaths, and car occupants only about 5%. The author has also recorded that the patterns of traffic and crashes in India are very different from those in high-income countries. Pedestrians have been mostly involved followed by motorized 2 wheelers. Pedestrians being the common victims can be explained by the fact that there is a lack of proper footpath and presence of vendors and other commercial installations by the side of the roads. Moreover, majority of road users are pedestrians thus are comparatively more exposed to the risk of accidents, and are of low or lower middle socio-economic status, are illiterate and lack traffic sense. Our findings are in general agreement with those of other (Singh and Dhatarwal, 2004).

Studies from developed countries have reported lesser involvement of pedestrians probably due to the fact that in developed countries motorization is to that extent that pedestrians are scarce on the road. In the present study motorized 2-wheelers are the second most commonly involved road user owing to less stability, higher speed, restless driving and thrill seeking habit (Archana et al, 2005).

2.5 Knowledge of motorcyclists on utilisation of safety kits

In Nigeria the appropriate legislation for helmet usage for motorcyclists and passengers has been enacted but the enforcement has been lax. Motorcycle rider apparently lack public health education and the application of safety measure thus predisposing them to having serious and fatal injuries in many instances (Adegbehingbe, 2003). Illiteracy, lack of basic education of traffic rules and regulations, the intensity of traffic mix and lack of separation of motorcycle riders from fast moving motorized vehicle heighten the risk of accident, injuries and death from commercial motorcyclist. Majority of motorcyclists have been reported not to

wear any protective gear, hence aggravating the risks of getting severe head injuries (Oluwadiyaet *al*., 2004; Naddumba, 2004).

Another literature review in a study from Oyo State reveals that the level of training received by the commercial motorcycle riders before embarking on motorcycle riding business. 60.7% respondents trained for one week, 22.9% respondents trained for less than one month, 2.2% respondents received training for between one and six months. 3.3% trained for less than a year, while 0.9% respondents account for one year and above period of training, 83.6% respondents received formal motorcycle riding training for between one and three weeks (Ogunmodede and Akangbe, 2012). It can be seen from the above statement why there is incessant increase of accidents among commercial motorcycle riders, which includes: lack of adequate training of the motorcyclist's riders before had been exposed to road usage.

A study revealed that poor knowledge of traffic code and the desire to generate more money was also found to be a significant factor responsible for high rates of accidents among commercial motorcycle rider (Akinlade, 2000; Akinlade and Brieger, 2004; Pai and Saleh, 2007; Chang and Yeh, 2007; Ogunbogene, 2011; Rosembloom *et al*, 2011) commercial motorcyclist carry more than one passenger. The motorcycle riders do not ride with their driver's license and they do not put on their safety helmet for protection in case of accident. This could account for the severity of crush when commercial motorcyclists are involved in accidents (Mayrose, 2008).The implication of these is that the rate of morbidity and mortality as a result of motorcycle accident will increase. A study by Ogunmodede *et al* (2012) found out that motorcyclist check their motorcycle before ridings; some of them do not have functional trafficator's lights, side mirrors, horns and brake lights which in turn have a negative effect on the occurrence of accidents among commercial motorcyclists. Furthermore, the study also found out that the commercial motorcyclist do not know the actual speed limit they are expected to maintained while riding and their responses reflected that they seems to know the speed limit, but the kilometre per hour (km/hr) with which they drove shows that they do not know. 64.7% drove above 60km/hr and above which was the normal speed limit that they are expected to maintained.

Despite their effectiveness, helmets are not as widely used as they should be and when used, they are not used properly (Li *et al*., 2008). Negative attitudes towards helmet use (Hung, Stevenson and Ivers, 2008). Some reasons for non-adherence and non-use of helmet include

feelings of discomfort due to heat during the hot weather, and lateral vision and hearing ability impairment (Dandona, 2005).

In the UK, the enforcement of speeding violation for drivers/riders has been strengthened in recent years through the introduction of speed cameras.One might expect more enforcement of speeding violation would be effective in reducing motorcyclist casualties. Although there is no specific data available for motorcyclists, research has shown significant positive impact of speed cuts on road casualties, e.g. for every 1% reduction in mean traffic speed, fatalities reduce by about 7% (CIT, 2001). Anti-lock brakes (ABS) are designed to prevent wheel locking and thus provide motorcyclists with the confidence to use the brakes up to the limit of the friction available, without fear of falling to the ground. ABS also reduces stopping distance in wet and icy conditions. A few machines are now offered with anti-lock brakes (Elliot *et al*, 2003).

The rising motorcycle population and a significant increase in the number of motorist and commuters in Nigeria, we may expect more road accidents, with the accompanying casualties and fatalities except perhaps, decisive steps are taken to clearly understand and squarely face the principal causes of road accident, beyond these, road accidents need to be seen to be sufficiently controlled and well managed.The Federal Road Safety Commission was put in place about twenty-four years ago (1988) in Nigeria in order to ensure safety of lives on Nigeria roads, the rate with which accident is occurring on daily basis on our roads does not justify the large amount of money being paid to various agencies in charge of road safety in Nigeria.

2.6.1 Attitude of motorcyclist towards helmet use

The advocate primary preventive measures for reducing the severity of head injuries among motorcyclists and their passengers is the use of the crash helmet (Ganapathy, 2001). According to Ganapathy (2001), this safety measure provides additional protection to the head, and reduces the severity of injury to the brain. In Nigeria sporadic futile efforts have been made to make motorcyclists adopt the use of the crash helmet. As at today, not much is known about the use of crash helmet among motorcyclist, in spite of the anecdotal reports which have revealed that the prevalence of RTA involving commercial motorcyclists is on the increase at an astronomical rate.

The non-use of crash helmet has been associated with the notion that use of helmet increases rather than decreases the risk of an injury by reducing field of vision, creating discomfort, etc. (Dandona, 2005). Other reasons for not wearing helmet include the idea that helmets are necessary for the drivers of powerful engine motorcycles that travel in a high speed and not necessary for moped and scooter drivers; inconvenience of carrying the helmet as it could be stolen if left on the vehicle, and the inconvenience of removing it now and then for taking calls on the hand-held mobile phones while driving (Dandona, 2005), lack of comfort, negative social perception and inconvenience of helmets particularly in relation to storage of helmet when not riding (WHO, 2006) and being a good driver as an excuse of not wearing helmet (Dandona, 2005).

2.6.2 Age

Helmet users are more likely to be drivers of older age (Hung *et al.*, 2006; Kulanthayan et al., 2000; Skalkidou *et al.*, 1999). A study done by (Ackaah and Afukaar, 2010) in Ghana, found the difference on helmet use among different age groups. Helmet use was highest among elderly (>50 years), followed by adults (26-50 years) and young people (<26 years).

2.6.3 Location and nature of the trip

Regarding the location, it has been found that helmet users are more likely to be riding a long distance, travelling on highways and freeways, and/or in an urban area (Kulanthayan *et al.*, 2000). This study conquers with another study done in Ghana by (Ackaah and Afukaar, 2010) whereby it was evident that many commercial motorcyclists who work in town areas were wearing helmet more than their rural counterparts.

2.6.4 Education

Regarding the effect of education, a study done in Thailand by Swaddiwudhipong *et al.*, (1998) shows that motorcyclist education increased helmet use from below 20% to 46%. A survey conducted in Oyo state discovered that majority of 'Okada' riders are semi-illiterates. 37.1% respondents were holders of West African School Certificate, General Certificate, or Senior Secondary School Certificate. 36.2% respondents only attended primary school, 20.9% respondents have post secondary school certificates, while 25.8% have never experienced what is called formal education (Ogunmodede and Akangbe, 2012).This may account for why majority of these motorcycle riders are prone to accidents because it would be difficult for them to interpret or decode road signs on our highways. The same study also revealed that the level of formal education of the respondents reveals that commercial

motorcyclists do not have formal education training or are school drop-outs at early stage (Ogunmodede and Akangbe, 2012). This may account for high level of ignorance among them as most of the motorcyclists cannot interpret road traffic regulations or signs.

A large number of commercial motorcyclists are lowly educated with primary education or less (Daressalam, 2011). A similar observation was done by Iribhogbe and Odai (2009) in Nigeria whereby it was found that most of commercial motorcyclists 52.8% had primary education or no formal education. This good number of commercial motorcyclists with low level of education could be partly attributed by the fact that those who are less educated found themselves with few chances of getting other jobs and thus engage into commercial motorcycling business as a last resort following unemployment regardless of being a risky job (Iribhogbe and Odai, 2009).

2.6.5 Factors preventing commercial motorcyclist from using crash helmet

Generally, helmet used in developing countries is low (Odelowo, 1994 and Oluwadiya, 2004) according to Li, Li, Cai, Zhang and Lo (2008) Motorcycle helmet wearing rate remain low in smaller cities in developing countries. A study that examine the knowledge, attitude and behavior of motorcyclist towards helmet use carried out in china; a large proportion of both motorcyclist and passenger (34% and 71% respectively) did not wear a helmet or did not have their helmet fastened (34% and 14%) proper helmet usage rate were lower among male ride and young people further more proper helmet usage were lower among rider on secondary street and those riding during the evening and weekends (Li et al. 2008).

According to Solagberu, Ofoegbu, Nasir, Ogundipe and Adekaye-Rahman (2006) none of the motorcycle wore helmet at the time of the injury in a 12 months prospective study of patient with motorcyclist injury conducted at university of Ilorin Teaching Hospital. The result revealed none compliance by motorcyclist to helmet law and reluctance enforcement of the law by appropriate authorities.

Amoran et al, (2005-2006) reported that practice of road safety measures was slow in a rural Nigerian community and none of the respondents use any protective helmet in a cross sectional study of commercial motorcyclist in Igbo-ora, Nigeria.ossession of helmet may be one of the determinants of helmet use. However, very few motorcyclists wear helmets for preventive purposes and many just do because they don't want to be caught by law (Li *et al.*,

2008). Inconsistent helmet wearing is secondary to ineffective legal enforcement towards helmet use (Kulanthayan *et al.*, 2012). Generally, this suggests that low level of helmet use may be partly attributed by the lack of knowledge of the protective benefits of helmets and low legal enforcement regarding helmet use. Studies from high-income countries suggest that mandatory helmet wearing results in 25% reduction in head injuries in cyclists (Elvika and Vaa, 2004).

A number of studies in Texas, USA have shown that introducing comprehensive motorcycle helmet legislation is associated with a decrease in injuries and fatalities. In one of these studies was a decrease in injury rates of between 9-11% (WHO, 2006), while another showed more striking reduction of 52-59% in head injuries and fatalities (Preusser, Hedlund and Ulmer, 2000). Conversely, repeal of helmet legislation in Florida led to increases between 17.2%-20.5% in both fatalities and fatality rates (Muller, 2004 and Ulmer and Preusser, 2003a).

Laws making helmet use compulsory is an important factor that promotes use of crash helmet, especially in low-income and middle-income countries where helmet wearing rates are low and where there are large numbers of users of motorcycles (WHO, 2006). There are many studies that have evaluated the impact of motorcycle helmet laws on helmet wearing rates, head injury and death. When mandatory helmet laws were enforced, helmet-wearing rates have been found to increase to 90% or higher (Servadei, Begliomini, Gardini, Taggi and Kraus, 2003). In 1989, Oregon, Texas, California, Maryland, Washington and Nebraska in the United States of America (USA) enacted helmet use laws that govern all motorcycle occupants. After the first year of the enactment of the universal helmet law the following reduction in motorcycle fatalities occurred in these states: Oregon–33%, Nebraska–32%, Texas–23%, Washington State–15%, California–37% and Maryland–20% (NHSTA, 2006). When such laws were repealed, wearing rates fall back to less than 60% (Turner and Hagelin, 2004). In 1997 when the helmet laws changed, limiting coverage to those under the age of 21 in the six states, (Texas, Arkansas, Louisiana, Florida, Kentucky and Pennsylvania) helmet use decreased (NHSTA, 2006).

In 2002, when Florida repealed their all-rider motorcycle helmet law, there were 40% more motorcyclists admitted to hospitals for treatment in 30 months immediately after the helmet law change (NHTSA, 2006). Deaths increased by 24% above what was expected from the

increased registrations after the repeal of the law (NHTSA, 2006). Fatalities in Florida per 10,000 registered motorcycle increased by 21 percent compared to 13 percent nationally for the two years before and after the law changed (75 percent higher than the national rate). Deaths of motorcycle riders under the age 21 who were not wearing helmet increased by 18 percent even though the law still applies to them (NHTSA, 2006).

Consequently, helmet use decreased following the changes in helmet laws in Arkansas and Texas. Fatalities in these two states increased by 21 percent and 31 percent compared with the previous year when the universal helmet law was in place (NHTSA, 2006). In 1998, universal helmet law repeal in Kentucky and 1999 repeal in Louisiana produced effects similar to Arkansas and Texas. Observed helmet use dropped from nearly full compliance under the universal law to about 50 percent in Kentucky and over 100 percent in Louisiana Injuries also increased substantially in both States (48% in Louisiana and 34% in Kentucky) (NHTSA, 2004). The rate of fatalities and injuries per registered motorcycle increased in both states following the helmet law repeals (Ulmer et al, 2007a).

In Italy, a study conducted to determine the effectiveness of helmet law on traumatic brain injuries confirmed that helmet use reduces hospital admissions from head injuries by 28% - 37% (La Torre, Bernazzani, Zotta, Van Beeck and Ricciardi, 2002). Regarding risk factors for motorcycle injuries; the non-use of helmet has been identified as a specific factor leading to head injuries and fatalities resulting from motorcycle crashes. Helmets as a protective measure have been identified to be effective towards head injury prevention (WHO, 2006); and reduces the fatality of motorcycle riders (Keng, 2004). The fatality risk is reduced by 34% (Dee, 2009).Among participants who reported to not wear helmet, the most frequently mentioned reason behind the practice were helmets are not of good quality and are not comfortable

The low quality of helmets has been mentioned by other author (Peek-Asa McArthur and Kraus, 1999) and may be partly expounded by the lack of focus on the matter by the quality regulatory bodies. The mentioned reason that helmet is not comfortable corresponds to the finding of another study done in Iran whereby one of the reasons given for poor compliance to helmet wearing was that helmets were designed to be used in temperate countries and were uncomfortable to use in hot weathers (Zargar, Khalil and Karbakhsh, 2006) The nature of [illegible] has been reported as another factor associated with helmet usage. In studies done in

Nigeria. Helmet use has also reported to be more frequent during day rather than night hours and during weekdays rather than weekends (Dandona, 2005).

There is also the issue of blurring of vision with the use of helmets, a factor also in a study conducted in South west Nigeria Many more motorcyclists (73.7%) used goggles than helmets (25.4%) in the study (Achigbu and Ezepue, 2013). The result of another study that investigated the effectiveness of motorcycle helmet legislation introduced in Anambra state, Nigeria in 1976-1979 indicated that there was a sharp increase in motorcycle injury and fatalities following the abrogation of the law (Asogwa, 1980). In 2004, The World Health Assembly adopted resolution recommends that member state especially developing countries, Legislate and strictly enforce the wearing of crash helmet by motorcyclists (Resolution of the World Health Assembly, 2004) The world health assembly resolution was an international agreement that can be used by those wishing to influence policy on helmet use as a basis for obtaining political support for this measure in particular,such a resolution have a direct relevance for the Ministry of Health, who by adopting WHA resolutions undertake to support the principles enshrined in them. According to the United Nations General Assembly Resolution A60/5 (2000)

> *"Invites Member State to implement the recommendation of the world report on road traffic injury prevention including those related to the five main risk factors, Namely the non-use of safety belts and child restraints, The non-use of helmets, drinking and driving, inappropriate and excessive speed, as well as the lack of appropriate infrastructure"*

There are various reasons for non-use of helmets that have been documented from study conducted in different countries. Motorcyclist feel that they are less likely to have a crash when travelling short distance and that therefore do not wear helmets for such trip (WHO, 2006) findings from a study conducted in California revealed that 60% of the motorcyclist where not wearing crash helmets at the time of their accident. 26% say they did not wear helmets because they were uncomfortable and not convenient, and 53% had no expectation of crash involvement in a study conducted in Rome, Italy on helmets use among adolescent motorcycle and moped riders, among those who reported sometimes or using helmet the most frequent reason for non use of helmet were that they were uncomfortable when wearing it, helmet was not available and wearing of helmets were also considered useless (Center for Disease Control, 201). In some countries where there is a strong social influence of peer and parent on helmets use among adolescent use of helmet may be influenced by adolescent

believe about what ever or no their father wear a helmet while riding a motorcycle (WHO, 2006).

Limited best practice based on knowledge coupled with deteriorating standard of education and not only cost and warm climate may be contributing factor resulting in decline of helmet use in Nigeria (Ime, 2006), also cultural or perhaps religious reasons may explain the use of helment. A typical Northerner in Nigeria may decline helmet use since it will comprise his wearing of the 'Hula'-Traditional hat(Ime, 2006). Some noted that helmet cannot be worn over some traditional or religious head gear for example Turban worn by Sikhs while some in part of Africa it is said to mess up ones hair (WHO, 2006). Elsewhere the use of helmet is seem as a colonial imposition that should be resisted similar to the phobia for seat belt used in vehicle (Ime, 2006). The ludicrous attitude of both commercial motorcycle rider and passenger toward the helment is another important inhibiting factor to helmet use even when the helmet is available there is no attempt to use it as prescribed.

According to Abati (2009), most commercial motorcycle rider and passenger wear the helmet on top of a cap, head gear of a turban the excuse is that it is risky to allow a helmet that has touched another man's head to touch ones head. Abati (2009) Noted that in our culture there is a superstitious believes that the head must be protected because it is the home of a person's destiny known as *"Ori or Ayoonu" among the Yoruba and "Chi" among the Igbos*. The meaning of these Anthropological concepts is more spiritual than physical. Many Nigerian insist that sharing helmet with another person could result in the transfer of bad luck while some passenger of commercial motorcycles also complained that helmet could become a ready weapon for kidnappers (Abati, 2009). passenger of commercial motorcycles riders may also be reluctant to wear the helmet provided for them by the rider due to concern over their cleanliness or infection that might be transmitted through use for example Head lice (Abati, 2009).

There are claim that helmet increase risk of head injuries and reduced peripheral vision and hearing (NTHSA, 2007). However, Studies have shown that helmet confront in to standard are correctly worn do not cause neck or spinal injuries (WHO, 2006). Though research findings have shown that helmet do not affect peripheral vision or contribute to crashes some riders have a strong believe that the technology impairs hearing and sight some studies have indicated that properly fitted helmet can actually improve the ability to hear by reducing the

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noise of the wing (WHO, 2006). The study was conducted by NTHSA to access the effect of wearing a helmet on the ability or a motorcycle rider to virtually detect the presence of vehicle in adjacent lane before changing lane and to detect traffic sound when operating at normal highway speed. The result from this study indicated that wearing a helmet does not restrict the ability to hear auditory signals or the likelihood of seeing a vehicle in an adjacent lane to changing lane (NTHSA, 2007).

Study shows that commercial motorcyclist passengers are uncomfortable with helmet use for reasons ranging from "fear of the helmets being laced with magic spells that could knock the wearer unconscious and expose them to robbery to fear of picking up infections such as scabies, *crow-craw*, ringworm, dandruff" (cited in Oboh, 2009). Use of makeshift helmets such as fruit shells, dried pumpkin shells, calabash, paint pots and pans or pieces of rubber tire, and plates (Oboh, 2009; BBC News, 2009) is common in Nigeria. Therefore, to allay the fears of CMPs on helmet use, there might be the need to develop measures that require riders to clean up helmets with sanitizer before handing it over to the next passenger.

Regarding the claim that helmet obstruct vision study have shown that full coverage helmet provided minor restriction in horizontal peripheral vision (National Institute of High way Safety, 2007). According to McKnight an McKnight (1994) wearing helmet restrict neither the ability to hear hom signal nor the likelihood or seeing a vehicle in an adjacent lane prior to initiate a lane change there where no difference in hearing thresholds under 3 helmet condition no helmet, partial coverage and full coverage. The noise generated by a motorcycle is so loud that any reduction in hearing capability that may result from wearing a helmet is inconsequential. Any sound loud enough to be hearing above the engine can be heard when wearing a helmet (Mcknight, 1994). In a study that assessed the impact of the helmet law and traumatic brain injury in Italy there was 66% increase in admission of traumatic brain injury for motorcycle and a 34% decrease in traumatic brain injury admission to neurosurgical hospital unit when the law was enacted (Servadei *et al*, 2003). All through evidence has shown that there is sharp increase in death following head injuries when there is repeal of law mandating motorcycle rider to wear helmet and some rider still believe that fatality rate are lower in places without helmet law.

2.7 Benefit of using crash helmet among commercial motorcyclist

The use of the crash helmet is very beneficial. The crash helmet, if well used, is known to reduce or mitigate the physical impact of accidents among motorcyclists. Wearing a standard, good quality motorcycle helmet can reduce the risk of death by 40% and the risk of serious injury by over 70% (Abbas, Hefny and Abu-Zidan, 2012; WHO, 2013b). Introducing and enforcing legislation on helmet use is effective at increasing helmet-wearing rates and reducing head injuries (Hyder, Waters, Phillips and Rehwinkel, 2007; Kanitpong, Boontob and Tanaboriboon, 2008; Liu et al, 2008).

Many prospectively conducted studies on motorcycle injuries have shown high cost of treatment, high incidence of head and cervicle injuries as well as mortality in patients who had no crash helmet on when accidents occured (Ayorinde, Solagberu, Adekanye and Ofoegbe, 2005).

Wearing a crash helmet is the single most effective way of reducing head injury and fatality resulting from motorcycle accidents (WHO 2006). Motorcyclists who do not wear helmet are at greater risk of sustaining head injury and dying from these injuries (WHO 2006). A motorcyclist not wearing helmet is 40% more likely to suffer a fatal head injury and 15% more likely to suffer a non-fatal injury than a helmeted motorcyclist when involved in a crash (NHTSA, 2006). However, cyclist who do not wear helmet place additional cost on hospitals. Disability that result from these head injuries incurs cost at individual family and societal levels (WHO, 2006), studies that compares hospital cost for motorcyclists with or without revicwed that rider who do not wear helmet and got involve in crashes were less likely to have insurance and were not more likely to have higher hospital cost than helmeted riders involved in similar crashes (NHTSA, 2006). The NHTSA estimated that motorcycle helmet used safe $19.5 billion in economic cost in economic cost from 1984 through 2002 and additional $14.8 billion would have been saved if all motorcyclists had worn helmet during the same period under review (NHTSA, 2004).

According to NHTSA (2004), motorcycle helmet provide the best protection from head injuries from motorcyclist in accident helmet are 67% effective in preventing brain injury and those motorcyclist without helmet involved in crashes were three time more likely to suffer brain injury than those wearing helmet (NHTSA, 2006). Study on impact of motorcycle helmet use on patient outcome and cost of hospitalization revealed that on the average,

helmet use led to average hospital cost that were about 20 percent less than cost of those who did not wear helmet. In addition, for patient who were treated on an impatient rehabilitation floor after leaving the trauma unit, average cost without helmet riders were nearly twice those riders with helmet. The result also confirmed earlier findings that riders without helmet were younger, suffered more head and neck injuries, and had higher overall injury severity scores (Brant, Ahms, Corpron, Franklin and Wahl, 2002).

Findings from a prospective study conducted in Bangalore, in India revealed that if all occupants of motorized two wheelers compulsorily wear helmet the death rate among two wheeler occupants due to head injury will be decreased by 30-40percent, head injuries with disability will be reduced by 20-40 percent, duration of hospitalization will be reduced by 25-30 percent, whilst neurosurgeons would have 20-30 percent of their professional time available to treat brain tumors rather than treat severe head injuries.

Data from Thailand indicated that head injuries decreased by 21% following legislationand enforcement of helmet use by motorcyclists (Ichikawa et al, 2003).Observational studies have shown that when helmet use is voluntary for all or most motorcyclists, use rates range anywhere from about 30 percent to 60 percent but are generally 40-50 percent when all motorcyclists are required by law to wear helmets, use rates typically close to 100 percent (Nair,1993).

According to Law, Noland and Evans (2013),improvements in democracy, education levels, per capita income, political stability, andincome distribution within a country, as probably in Brunei Darussalam and Singapore, areassociated with the enactment of the motorcycle helmet.

2.8 Perception of motorcyclists on vulnerability to accident

In an analysis of 900 motorcycle accidents in Los Angeles found that the most common motorcycle accident involved another vehicle 75% violating the right-of-way of the motorcycle at an intersection usually by turning left in front of the oncoming motorcycle (Hurworth, 2005). Road accidents appear to occur regularly at some flash points such as where there are sharp bends, pot-holes and at bad sections of the highways. At such points over speeding drivers usually find it difficult to control their vehicles, which then result to fatal traffic accidents, especially at night (Anubi, 2009). Cases of fatal road traffic accidents are reported almost daily on the major highways in Nigeria are also involved in these fatal road traffic accidents in the State. Radin Umar (2006) stated that one of the main reasons for these

vulnerability is due to the exposed body regions and little protection offered by motorcycle safety devices during a collision. Commercial drivers tend to overload and over speed with the aim of making much profit (Naddumba, 2004). Therefore, to reduce the severity of motorcyclist injuries and enhancing the motorcycle safety there is needed to introduce a technology that called Intelligent Transport System (ITS) in the motorcycle itself.

Motorcycle riders and their passengers are vulnerable on the road and represent an important target for the reducing road traffic injuries (Peden, 2004). In a study conducted to examine the risk perceptions among users of commercial motorcycles in cities of South Western Nigeria, found that the opinions of commuters on the safety associated with commercial motorcycles transport in the three cities as shown that 21.5% of the respondents in the sampled cities perceived commuting within the cities on motorcycles as safe and harmless. The proportion of those that considered it not safe is 40.45%. These proportions varies from one city to another, for instance about 40.29% of the respondents in Ile-Ife are of the opinion that it is not safe to use motorcycles as public transport 45.71% in Ondo and 36.6 % in Ado-Ekiti are of the opinion that using commercial motorcycles as public transportation is not safe (Oluwole, 2010). Majority of motorcycle passengers do not wear any protective helmet because they see themselves as child of God and they cannot have accident.

Vision

The effects of visual impairments and driving performance are another area among commercial motorcyclist that need much empirical attention. Vision is a main sensory input of driving, age-related visual impairment has been perceived by many to be an important risk factor for driving performance (Unsworth, Wells, Browning, Atchley and Dubinsky, 2005; Richardson and Marottoli, 2003). Some studies have reported visual impairments to be significantly related to crashes and traffic violations among older drivers (Bedard *et al.*, 2006; Hoffman, McDowd, Atchley and Dubinsky, 2005; Richardson and Marottoli, 2003).

Motorcyclists and their passengers are prone to poor visibility when they are moving at high speed and under inclement weather. This situation, coupled with non-use of safety helmet or other protective devices put riders and passengers at risk of RTI. Motorcyclists and their passengers as well as pedestrians are at far greater risk than drivers and passengers of cars and large motor vehicles. Road safety experts thus refer to them as "vulnerable road users" (WHO, 2004).

The world report on road traffic injury prevention recommends that all countries, regardless of their level of income should follow this good practice of setting and enforcing laws requiring riders of motorized-wheelers to wear helmets (WHO, 2004). Helmets reduce the incidence and severity of head injuries in motorcycle riders. Protective clothes seem to reduce the risk of soft tissue injury among motorcycle riders; no advantages in the occurrence of fractures were found (Otte, Schroeder and Richter, 2002). Safety knowledge and practice among motorcyclists in Ido LGA need to emphasize on in other to prevent occurrence of commercial motorcycle accident in the State at large.

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2.9 Conceptual frame work

A conceptual framework presents a systematic way of understanding events and situation. It is a set of concepts, definitions, and proportions that explains or predict these eventsorsituations by illustrating the relationships between variables(National Cancer Institute, 2005)

The purpose of the theory in research is to help the researcher to be able to ecplain the dynamics of the health behavior, including processesof changing them, and the influences of many forces that affect health behviours, such as social and physical environments. Theory and frameworks also provide planners the most suitable information such as target audiences, methods for fostering change, and outcome evaluation before planning and implementing health promotion intervention.

Conceptual frame Work used for this work is the "PRECEDE model

PRECEDE model framework (Green and Kreuter, 1991) was used to facilitate the design of the study. It was used to select some key or pertinent variables that are related to the research questions and objective for measurement.

The acronym "PRECEDE" stands for predisposing, Reinforcing and Enabling causes in Educational Diagnosis and Evaluation. The model was developed by Green, Kreuter, Partridge and others. It is an important conceptual framework in Health education, planning aimed at diagnosing the health problems of a community, understanding the factors that influence the people's behavior and developing intervention to promote healthy behavior or change such behavior to positive ones (Green and Kreuter, 1999). The model consists of three antecedent factors which are; predisposing, reinforcing and enabling factors that influence human behavior positively or negatively

- **Predisposing factors**

The predisposing factors are behavioral antecedent factors that motivate or provide a reason for behavior. These are factors which must be present before a decision can take place about behavior. They include–level of education, readiness to change, Awareness, Attitude, knowledge and belief of motorcyclists about injuries, accidents and use of safety kits.

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These are factors related to the influence of significant others such as influence of friends, passengers, family members and colleagues.

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- **Reinforcing factors**

These are factors related to the influence of significant others such as influence of friends, passengers, family members and colleagues.

For the purpose of this research, the frame work was adopted to identify factors that promote and reinforce the behaviors to use safety kits among commercial motorcyclist in Ido LGA of Oyo State.

- **Enabling factors**

These are factors that make any health related behavior more or less likely to occur. These are factors which are presented before the behavioral decision takes place. These factors include cost of seeking health services for injuries payment of bospital bills, flexibility, negotiability, speed and accessibility.

For the purpose of this research, the frame work was adopted to identify factors that promote and reinforce the behaviors to use safety kits among commercial motorcyclist in Ido LGA of Oyo State.

The detail of the application of the PRECEDE are highlighted in figure 2.1:

Fig 2.1: Application of PRECEED Model to knowledge of motorcycle accidents and utilisation of safety kits among commercial motorcyclist in Ido LGA.

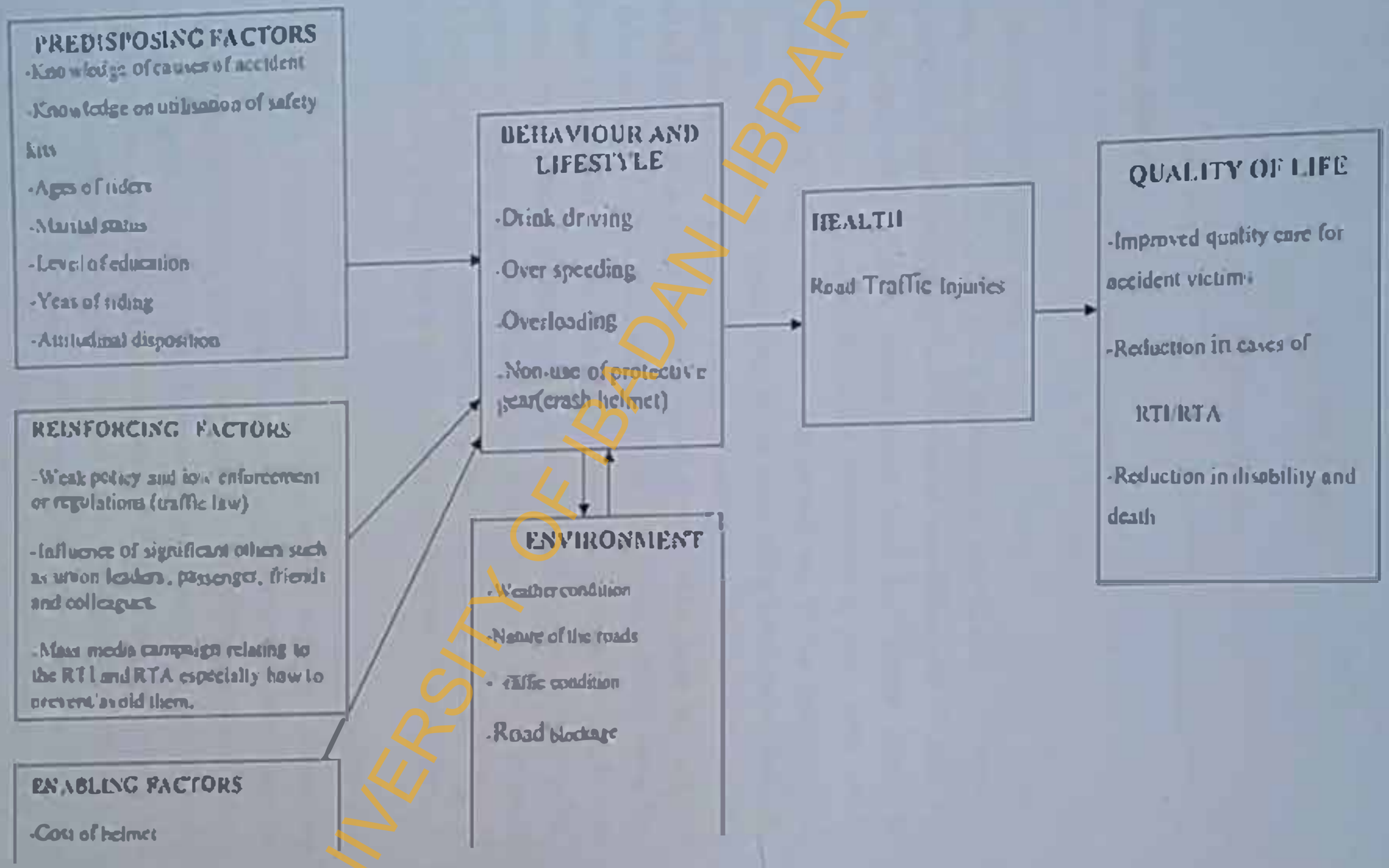
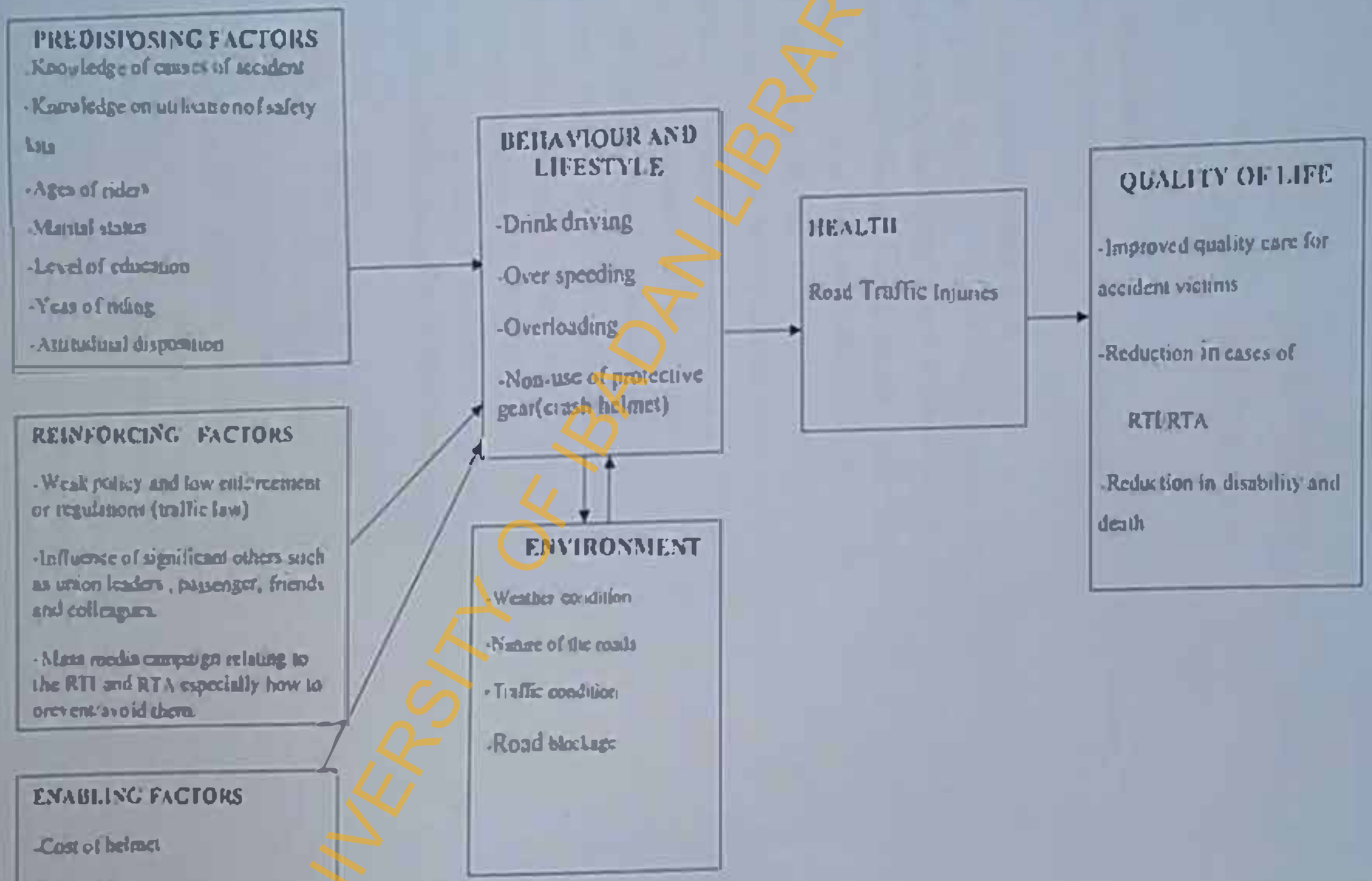


Fig 2.1: Application of PRECEED Model to knowledge of motorcycle accidents and utilisation of safety kits among commercial motorcyclist in Ido LGA.



(Green and Kreuter, 1999)

CHAPTER THREE

METHODOLOGY

3.1 Study Design

The study was a descriptive cross-sectional survey.

3.2 Descriptions of Study Area

The study was carried out in Ido Local Government Area (ILGA). The LGA has its head quartedan-Eruwa road at Ido along Iba Area shares boundaries with Oluyole, Ibarapa East, Akinyele, Afijo, Ibadan North, Ibadan North West and Ibadan South West Local Governments in Oyo State and Odeda Local Government in Ogun State. Ido LGA which came into being in May 1989 and it was carved out of the former Akinyele Local Government Area with its headquarters in Ido along the Ibadan-Eruwa road. The area was referred to as Akinyele West LGA during the second republic before it merged again with Akinyele LGA by Buhari and Idiagbion regime in 1987 which came into beig in May 1989. The LGA covers areas like Bolorunre, Omi-Adio, Ido, Apete, Akufo, Gbekuba, Idiya and important villages like Alade-Owo, Dada, Oderemi, Odetola, Alabagba, Aba Ayinde, Oderemi, Ogunwehinde, Odufemi and Alagba. The LGA consist of 10 wards and share boundries with Odeda LGA Ogun State by the South, Ibarapa East LGA in the West, Afijio LGA and Akinyele LGA in Akinyele LGA in the North and in the East it shares boundaries with Ibadabn North, Ibadan North West, Ibadan South West and Oluyole LGAs.

Farming is the major occupation of the inhabitants. They grow crops such as cocoa, Kola nuts, palm-trees, plantain, cassava, orange, maize, banana, cherry and a wide range of other fruits. The LGA can be aptly referred to as one of the fruit baskets of the state. Ido LGA also gained from industrialization process from industries like Nigeria Wire and Cable Ltd., Union Beverages Nigeria Ltd, Lafia caning Industrie Nigeria Mining Corporation, Lafia Hotel and Nigeria National Petroleum Corporation Depot in Apata. It has sixty eight primary Schools and eight Secondary Schools, six Maternity Centers, had about twenty health Centres and four Customary Courts. Some principal towns such as Apete, Ijokodo, Omi-Adio and Apete have access to electricity supply, though the supply is erratic. Most of part of the LGA lack pipe-borne water. Majority of the inhabitants' depends on commuter services such as taxis,

minibuses and motorcycles as means of transportation. There is a tremendous increase in the use of commercial motorcycle as means of transportation in their major towns and villages. In the LGA, most roads are not tarred and it is only motorcycles that can be used to reach many of the inner part of the community. Road safety signs are totally absent or are in terrible condition where available.

3.3 Popolatioo of the study

The study population enrolled of all commercial motorcyclistsin Ido LGA, Oyo State.

3.4 Research variables

The variables were categorized into two oamely the independent variables and the dependent variables.

3.4.1 Indepcodent Variables: The independent variables in the study includes the socio-demographic characteristic of the commercial motorcyclists such as age, marital status, level of education and years of riding commercially.

3.4.2 Dependent Variables: The dependent variables on the other hand: knowledge of motorcycle accidents, utilisation of safety kits among commercial motorcyclist in Ido LGA, Oyo State.

3.5 Inclusion criteria

1. The respondents must be a commercial motorcyclist.
2. Being at work during the period of the study.

3.6 Exclusion criteria

1. A respondent who does not give his consent was excluded.
2. A respondentsthatwere nota commercial motorcyclist was excluded.

3.7 Determination of sample size

The sample size (n) was determined by using (Lelie Kish's, 1965) sample size determination formula:

$$n = \frac{Z^2pq}{d^2}$$

Where n = minimum sampie size required

Z= The standard normal deviation set at 1.96 (which correspond to the 95% confidence interval (CI).

P= (18% Nzegwuet Aligbe, Banjo and Akhiwui, 2008).

d= the degree of accuracy (absolute deviation set at set = 0.04

$n = \frac{1.96^2 \times 0.18 \times 0.82}{0.04^2} = 354.4$ approximate= 354

Adjusting for anticipated 10% non response rate;

10% of 354 = 354x0.10= 35

The total calculated sample size was 389 approximated to 400.

3.8 Sampling Technique

A multistage sampling technique was used in the selection of the motorcyclist. The stages include;

Stage I: Simple random sample method (balloting) was used to select six wards out of the 10 wards in Ido Local Government Area. Random number was assigned to the ten wards and six were picked without replacement. The following wards were (Apete, Ido, Idiya. Gbekuba, Omi Adio and Ogundele Alawo) (See appendix I for the wards selected).

Stage 2: In the six wards selected there were thirty-six units. Twenty units from the thirty-six units were selected using weighted ratio (See appendix II)

Stage 3: Proportionate sampling method was used to select the number of unit to study in each of the six wards selected using the total number of unit in each of the six wards. This was calculated using the following formula:

$$\frac{\text{Total number of units in each ward}}{\text{Total number of units in the six wards studied}} \times \frac{\text{Total number of units selected}}{1}$$

(See appendix III)

Stage 4: Proportionate sampling method was used to determine the total numbers of questionnaires distributed in the selected wards. This was calculated using the following formula:

$$\frac{\text{Total number of units selected in each ward}}{\text{Total number of unit studied}} \times \frac{400}{1}$$

Stage 5: Simple random sampling method of balloting was used to select respondents till the sample size for each units was achieved.

3.9 Methods for data Collection

A mixed method was used to collect data consisting Focus Group Discussion (FGD) guide and a questionnaire.

3.9.1 Instrument for Data collection

(i) Focus Group Discussion

Focus Group Discussion Guide (FGD) constitute 10 questions (Appendix IV for the FGD guide). The questions were framed and tailored to give further insights into knowledge of motorcycle accident, and utilisation of safety kits among commercial motorcyclist was used to facilitate the discussions. The response from the Focus Group Discussion was used in modification of the questionnaire.

(ii) Questioonaire

The collection of the quantitative data was done by means of semi-structured questionnaire (Appendix V). The questionnaire was developed after a review of the literature. The questionnaire used to elicit quantitative data from the respondents consists of five sections labeled A-E. Section A sought information on Age, Marital status, Religion, Ethnic group, years of riding commercially and other socio-demographic characteristics of the respondents. Section B contained questions that were used to determine the prevalence of motorcycle accidents. Section C sought information on causes of motorcycle accident among the commercial motorcyclist. Section D focused on eliciting information's on knowledge of safety kits among commercial motorcyclist while section E focused on eliciting information on expressed attitude of commercial motorcyclist on utilisation of safety kits

3.10 Validity of the Instrument

In order to determine the validity of the instrument (the questionnaire and FGD guide) for data collection.

1.The drafts of the questionnaire were developed by consulting relevant literature. The draft of the instrument underwent an independent review from peers and expert researchers in the Faculty of Public Health, Collegeof Medecine University of Ibadan. The experienced researchers consisted of specialists in Health Promotion and Education, Population and Reproductive Health.

2. Pretest of the instrument was conducted between 6th-12th May 2014 using Egbeda LGA based on similiarities in characteristic with the study population

3. Supervisor review was used in fine-tuning the instrument.
4. Content validity of the questionnaire was further ensured through the incorporation of the preliminary pretested FGD outputs.
5. Special care was taken to monitor the quality of data collected through supervision during collection of data.

Forty questionnaires were administered in two selected motorcycle units. The completed questionnaires were edited and responses code and entered into a computer. The data were analyzed using descriptive statistics

Based on the pre-test results, the following recommendations and changes to the main study were made;

i) The title of the study was modified to read "Knowledge of motorcycle accidents and utilisation of safety kits among commercial motorcyclist in Ido Oyo State"

ii) The instruments were translated in to Yoruba which is the Local Language of the target population (Appendix VI and VII) by Yoruba Language expert. Another Yoruba language expert translated it back to English Language.

iii) Owing to the bulky nature of the 7-page questionnaire, average administration time per questionnaire was recorded as 35 minutes

iv) The outcome of the pre-test was used to correct and modify questions which were not clear to respondent and those that were found to be irrelevant were removed and adequate spaces were provided for responses as well as skipping mechanism.

3.11 Reliability of the Instruments

In order to dtrmine the reliability of the Instrumnent (the questionannire and the FGD guide) were reviewed for quality and consistency. The two Instument were pre-tested to ascertain sustainability and appropriateness to field situation, determine whether the questions were cleared and simple enough for participants comprehension and determine the trend in the response of participants and the amount of time it took to administer the questionnaire.

The FGD guide was pre-tested among two groups (Youth and Adult) of commercial motorcyclist in Iyana-Wofun and Junction of Nigerian brewer in Egbeda LGA. Forty commercial motorcyclists were interviewed using the questionnaire (representing 10% of the actual sample size for this study) at Egbeda LGA. The questionnaires was cleaned, coded and entered into the computer.The reliability of the questionnaire was determined using the

Cronbach's Alpha model technique of SPSS(version 15). The reliability correlation co-efficient of 0.87 was obtained, which indicated that the instrument was very reliable.

3.11.1 Recruitment and Training of Research Assistants for the study

Considering the wide geographical spread of this study; involving visits to 6 wards and spread across 36 motorcycle units in Ido LGA of Oyo State, it became necessary to recruit and train Research Assistants (RAs) who would help in data collection. A 5-man team of researchers comprising of the principal investigator was constituted. The following selection criteria was used to select the four (5) initial RAs for training with the aim to select four thereafter.

1. Educational qualifications of the assistants were at least Ordinary National Diploma (OND), B.Sc in a health and/or science related field, MSc and MPH.
2. The candidates were fluent in English and Yoruba Language.
3. Interpersonal and good communication skills.
4. Report writing skills.
5. Ability to devote all hours to the research work while it lasts.

3.11.2 Training of Research Assistance.

The research assistants were trained for two days 28th - 29th May, 2014. A training manual, plan and timetable were developed and approved by the project supervisor for the training A time table was drawn for this period of 3 hours 9a m-12 noon daily at the ARHEC conference room, department of health promotion and education, Faculty of public health, University College Hospital. The training commenced with introduction of the trainer or the principal investigator and trainees. The trainees received training materials, sessions introduced them to the research study, objectives and methodology, role-plays on the data collection procedure (entry processes, seeking consent of potential cases for the study, signing of confidentiality assurance form and administration of questionnaire). The appropriate training methods and materials for facilitation were selected. These methods included a combination of largely active training methods such as participatory discussions, demonstration and return demonstrations, role-play and lectures to make the training participatory. Recapitulatory questions for monitoring and assessing trainees' comprehension was asked from time to time Demonstrations was used to transfer skills for conducting FGDs, Transcriptions and report writing of findings,and especially for the correct interpretation of each item. The

questionaire and the FGD guide was revised with them during the training after which the RAs were equipped with copy of the instrument each to be taken home and read over for better understanding with aim of answering any burning question that may result the following day. The questionnaire was further revicwed to ensure the consistency in the numbering and the adequacy of the skip instructions. In addition, content and construct validity were reviewer during the training of research assistants to easure uniform understanding and interpretation by all research assistants.

Negotiations and logistic plans for data collection were discussed and stipends paid to RAs. The researcher facilitated the training with supervision by staff members of the Department of Health Promotion and Education. This team helped to assess and score trainees and based on the assessment scores, the final four research assistants were selected for the study. Each RA was assigned potential dates and units for data collection and were directly supervised by the researcher. Each RA received a copy ofthe field manual, copies of the questionnaire, one copy of the ethical approval from the State Ministry of Health and writing materials all contained in a clear water proof bag. All RAs participated in the data collection for the pre-test of the questionnaire in Egbeda LGA, Oyo State were included.

3.12 Data Collection Procedure

The study was carried out from June 10th to August 6th 2014 with the assistance of four trained Research Assistants. The researchers with the four trained research assistants administer the questionnaires to the respondents in Ido Local Government Area, Oyo State. The research assistance were trained in the following areas; the objectives of the study, the Sampling procedure, how to secure respondents informed consent; Important of collecting valid data; procedures for questionnaire administration and techniques for reviewing questionnaires for reviewing of the items on the questionnaire to have adequate understanding of the instrument and completeness. The manual of field operation was prepared to explain how entries would be made, the number of questionnaires to be administered, the number of questionnaires to be administered and how variables would be code. The research assistants with the researcher were involved in the collection of the data. Data collection took place in the month of June-August 2014 mostly in the morning and afternoon on weekend days and during their meetings days. Short debriefing sessions were also held at the end of each day where the days work was reviewed and the next plan of action disseminated to the research assistants.

3.12.1 Qulitative Method

A total of six FGDs were conducted among commercial motorcyclist in August, 2014 for two weeks. The sessions were conducted in a venue that was free of distraction. The venues were carefully selected with input of leaders of motorcycle association. The venues used were conducive for the participants to discuss freely. Each FGD session lasted for a minimum duration of 45 minutes with each FGD session involving a group of discussant ranging from 6-8 discussants. The discussion sessions were conducted by a moderator, two note taker, who documented discussants responses using a tape recorder and through verbatim writing of proceedings. An observer also monitored the group dynamism and non-verbal communication that were characterized in each group prior to the commencement of each discussion session; the discussants were provided with full details of the study and an assurance of confidentiality of the disclosed information.

Numbers were assigned to discussants for the purpose of identification during the discussion session only. The numbers were not used to divulge the identities of participants. Permission to use a tape recorder was sought and verbal consent was obtained from discussants prior to commencement of each session. Each discussion was a highly interactive as discussants took turns to air their views in respect of the issues rised for discussion. Discussants were encouraged to feel free to disagree with one another if the need arises without interfering into one another's opinion. No person was allowed to dominate the discussion i.e. all participants had fair and equal opportunity to hear their views on question asked. Each of the FGD was later transcribed and the information used to support the report generated by the note-takers.

3.12.2 Quantitative Method

The quantitative data was collected with the use of a semi-structured interviewer administered questionnaire that was administered by the principal investigator with the help of four trained field assistants. A total of 400 questionnaires were administered and they were all retrieved. Face-to-face interview was conducted for the respondents in an ensured confidential location, this is to avoid distraction. Secluded places such as; under the tree and veranda was used to ensure comfort ability of the respondents. The data collection process included the following steps; visit to each of the ward, coupled with identification visit to each of the ward to the heads of each of the selected ward to seek a permission to conduct interviews and administer questionnaire on the respondents. The semi-structured questionnaire was interviewer administered since most of the potential participants were

unable to read or not. The sections in the questionnaire include the socio- demographic characteristics of the respondents while other section contains information on variables of the study.

3.13 Data management and Analysis

The tape-recorded response from the FGDs were transcribed verbatim and used to update the write up of the recorder. The FGD report was analyzed manually by the researcher. Content and context analysis using a thematic approach involving the grouping together of similar themes in each transcript was followed by identifying emerging trends and differences across transcript.

In respect to data analysis from the questionnaire the following were done.

1. All the administered questionnaires were checked one by one and edit them for purpose of completeness and accuracy.
2. Serial numbers was written on the questionnaires for easy identification and recall of any instrument with problems. Serial number was assigned to each questionnaire for identification and for correct data entry and analysis.
3. A coding scheme guide was developed after carefully reviewing the responses and appropriatescoring was done.
4. The data was manually coded and entered into the computer for analysis.

Respondents' knowledge on the utilisation of safety kits were measured using knowledge scale. Seven knowledge questions were asked and points allotted to each of the knowledge questions (2 points). Responses that were very close to the most correct answer were allotted 2 points each. Any response that was incorrect carried no point. (i.e zero point). The total knowledge score and the maximum obtainable score for each respondent was calculated. The Knowledge scores ≤5, >5-10 and >10 were categorised as poor, fair and good respectively.

Respondent's attitude towrd the use of safety kits were measured using a 12- point attitudinal scale. Six attitudinal questions were asked and points awarded to each of the questions (2 points). The respondent's level of agreement, disagreement or undecided to each of the question was awarded points. This was also based in its closeness to the most appropriate answer, while the most appropriate answer to the question was awarded full points (2 points).

This is different from knowledge scale in that the points awarded to the level of disagreement and agreement for each question varies. The total attitudinal score and the maximum obtainable score for each respondent was calculated which was then used to grade each respondents as negative or positive attitude towards safety kits.Attitude was measured on 12–point scale in which scores 6 and >6 were categorized as positive and negative attitude respectively.

The data were analyzed using IBM/ Statistic Package for Social Science (SPSS) (Version 16) statistical package Micro soft excel version 2007 for windows were used in the data analysis. The descriptive statistical tools used were mean, standard deviation and the inferential statisties of Chi-square (X^2) and logistic regression test was used for the analysis. Frequency and percentage tables were generated and Cross tabulations of some variables done using Chi-square (X^2) test. The research hypotheses were tested to establish associations between the independent and dependent variables using the chi-square (X^2) test at 5% probability level for rejecting the null hypotheses. Cross tabulation of dependent and independent variable was also done to establish associationsbetween the variable. The results were summarized and presented in chapter four of this dissertation. In addition, narratives statements were further used to present the data.The sequence of presentations was presented with the blo-data of the respondents and the research objectives.

3.14: Ethical Considerations

The proposal was submitted for approval and review by the Oyo State Ethical Review Committee. Informed consent was obtained from the respondents by giving them an informed consent form to fill by explaining it to the best of their understanding. The Inform consent form was spell out the title of the study, purpose of the study, justifications for doing the study as well as the benefit that will be derived at end of the study. The respondent that cannot read or write verbal information consent was sort from the respondents before the commencement of the filling of the questionnaire.

Participation was voluntary and there was no criticism of respondents who refuses to participate.Participants' identities like name or address was not written on the questionnaire so as to keep the information given by each respondent as confidential as possible. However, participants' were given equal opportunities to withdraw their consent freely during the study. Confidentiality of each participant was maximally maintained during and after the

collection of his information. Information gathered from the respondent was stored in a computer system for analysis by the researcher while the questionnaire filled by the respondent was kept for maximum of ten years after which it is believed that the purpose of the study would have been accomplished.

3.15: Limitations of the study

Some of the participants were not willing to provide information required by the researcher at the initial stage because of the fear of being arrested by law enforcement agents for non-use of crash helmet. Efforts were however made to reduce this problem by assuring them of the confidentiality of information provided and that law enforcement agents would not be involved in the study. It was also revealed that the outcome of the study would not be used to institute punitive measures against anyone. During the process of questionnaire administration, passengers' entry into the motorcycle parks occasionally caused disruption to the interview process. Each time this occurred, interview had to be suspended till later time when the motorcyclists return from their trips. In some occasions, the motorcyclists do not return to the park again and the interviewers had to suspend the interview. Incentive was provided for interviewees on completion of questionnaire to pay for their time and to avoid abandoning the interview as time was very crucial and valuable to motorcyclists. Lack of up dated registered of commercial motorcyclist in each units, simple random sampling was used to select the respondent in each.

CHAPTER FOUR

RESULTS

Basically, the findings of this study are presented in this chapter; additionaly the qualitative data obtained from the Focus Group Discussion is also included in the results.

4.1: Socio-demographic characteristics of respondents

It is pertinent to observe that the questionnaire obtained a completion response rate of 100% (400 out of 400) among commercial motorcyclist selected for the study, it is perceived that the ages of the motorcyclist ranged from 16 to 67 years and the mean age of 31.7±8.9 respectively with most of the respondents (39.8%) aged 25-35 years. (Fig 4.1) below displays the distribution of age of the commercial motorcyclist. Evidently, above half (54.5%) of the respondents were married, more than half (59.3%) of the respondents were Muslims while majority (70.3%) of the respondents were Yoruba. Furthermore, the educational qualification showed that half of the respondents (50%) had secondary education with either of West African School Certificate, General Certificate, or Senior Secondary School Certificatewhile (9.0%) had tertiary education.

Remarkably, about fifty-six per cent of the respondents claimed they consumed social substances such as cigarette and Indian Hemp, a little over half (51.3%) of the commercial motorcyclist consumed alcohol while few (34.6%) of the respondents consumed one sachet of alcoholic beverages irregularly. Majority (74.0%) of the respondents claimed they were not smoking cigarette while a few (26.3%) of the respondents claimed they were smoking cigarette. Out of the respondents that smoked cigarette, almost half (49.5%) of the respondents smoked all the time. Only a few (8.0%) of the respondents had a valid drivers' licence, 11.5% had invalid drivers' license while majority (80.5%) of the respondents had no drivers license. On the whole, fifty-nine percents of the respondents claimed they had no training before getting their drivers' licence while slightly above half (53.8%) of the respondents said they sometimes took their drivers' license along while working (Tables 4.1a and 4.1b).

Majority (64.3%) of the respondents claimed they ride "Bajaj boxer" motorcycles while just one per cent of the responds ride "Bazuki" motorcycle. Majority of the respondents (64.3)

had been in the business for more than five years while only few (2.0%) of the motorcyclist started the business less than a year prior the study (Table 4.1c).

None of the respondents were trained by any of the Government Agencies responsible for the training (Vehicle Inspection and Licensing Office and Federal Road Safety Crops). Particularly, this study showed that two hundred and seventy of the respondents (67.5%) had informal training while (32.5%) has no trainjng at all. Majority (68.0%) of the respondents claimed that they were trained before they started riding commercially; slightly above half (52.9%) were trained by their friends while few (8.1%) claimed to have been trained by their boss. Moreover almost half (44.5%) of the respondents claimed they were trained for more than one month, only few (3.3%) of the respondents were trained in just a day while majority (85.3%) of the respondents completed the training (Table 4.1d)

Table 4:1a: Respondents' Socio-demographic characteristics (N=400)

Socio-demographic	Nº	%
Age in (years)		
15-24 years	94	23.5
25-34 years	159	39.8
35-44 years	113	28.3
45-54 years	28	7.0
55-64 years	4	1.0
65-74 years	2	0.5
Mean age	31.7±8.9	
Marital Status		
Single	123	30.8
Cohabitating	24	6.0
Married	218	54.5
Separated	20	5.0
Divorce	8	2.0
Widow	7	1.8
Religion		
Christianity	151	37.8
Islam	273	59.3
Traditional	12	3.0
Ethnic Group		
Yoruba	281	70.3
Hausa	43	10.8
Igbo	29	7.3
Others ethnic groups(Igala, Igbira, Egede &TV)	47	11.6
Educational background		
No formal Education	77	19.2
Primary Education	118	29.5
Secondary Education	195	48.8
Tertiary Education	10	2.5
Drinking alcoholic beverages		
Yes	205	51.3
No	195	48.8

Table 4:1b: Respondents' Socio-demographic characteristics (N=400)

Socio-demographic Questions	No	%
Frequency of alcohol intake		
One sachet irregularly	71	34.6
Four to six sachets of beer (Chelsea) in a day	34	16.6
Four cups of ogogoro/ locally brewed gin in a day	23	11.2
One to four bottles of beer in a day	27	13.2
Two calabash of wine daily	50	24.4
Smoking cigratte		
Yes	105	26.3
No	295	73.8
Frequency of smoking cigratte		
All the time/can't remember the number of sticks daily	52	49.5
Two sticks daily	20	19.0
Three sticks daily	16	15.2
Five sticks daily	4	3.8
Once in a while/once in a week	11	10.5
Six sticks daily	2	1.9
Ownership of driving license		
Yes (Valid)	32	8.0
Yes (Invalid)	46	11.5
No	322	80.5
Training before getting the license		
Yes	32	41.0
No	46	59.0
Taking license along while working		
Always	32	41.0
Sometimes	42	53.8
Never	4	5.2
Number of years of motorbike driving licence acquisition		
<1 year	4	1.0
One year	18	4.5
Two years	23	5.5
Three years	9	2.3
Four yeRS	4	1.0
>5 years	20	5.0

Table 4:1c: Respondents' type of motorcycle and length of training (N=400)

Variables	No	%
Type of motorcycle ride		
Yamaha	34	8.5
Suzuki	27	6.8
Honda	69	17.3
Bajaj	248	62.0
Zhincheng	2	0.5
Boxer	9	2.3
Fele-Jincheng	7	1.8
Bazuki	4	1.0
Years of riding motorcycle commercially		
Less than one year	8	2.0
One year	23	5.8
Two years	35	8.8
Three years	37	9.3
Four years	40	10.0
Five years andabove	257	64.3

Table 4:1d: Respondents' training experience on riding motorcycle (N=400)

Variables	No	%
Training before riding commercially		
Yes	272	68.0
No	128	32
Training received on motorcycle riding		
Friend	144	52.9
Relatives	106	39.0
Boss	22	8.1
Length of training recived on motorcycle riding		
One day	9	3.3
Three days	15	5.5
One week	31	11.4
Two weeks	96	35.3
Two month and above	121	44.5
Training completed		
Yes	232	85.3
No	40	14.7

Figure 4.1: Age of the respondents'(N=400)

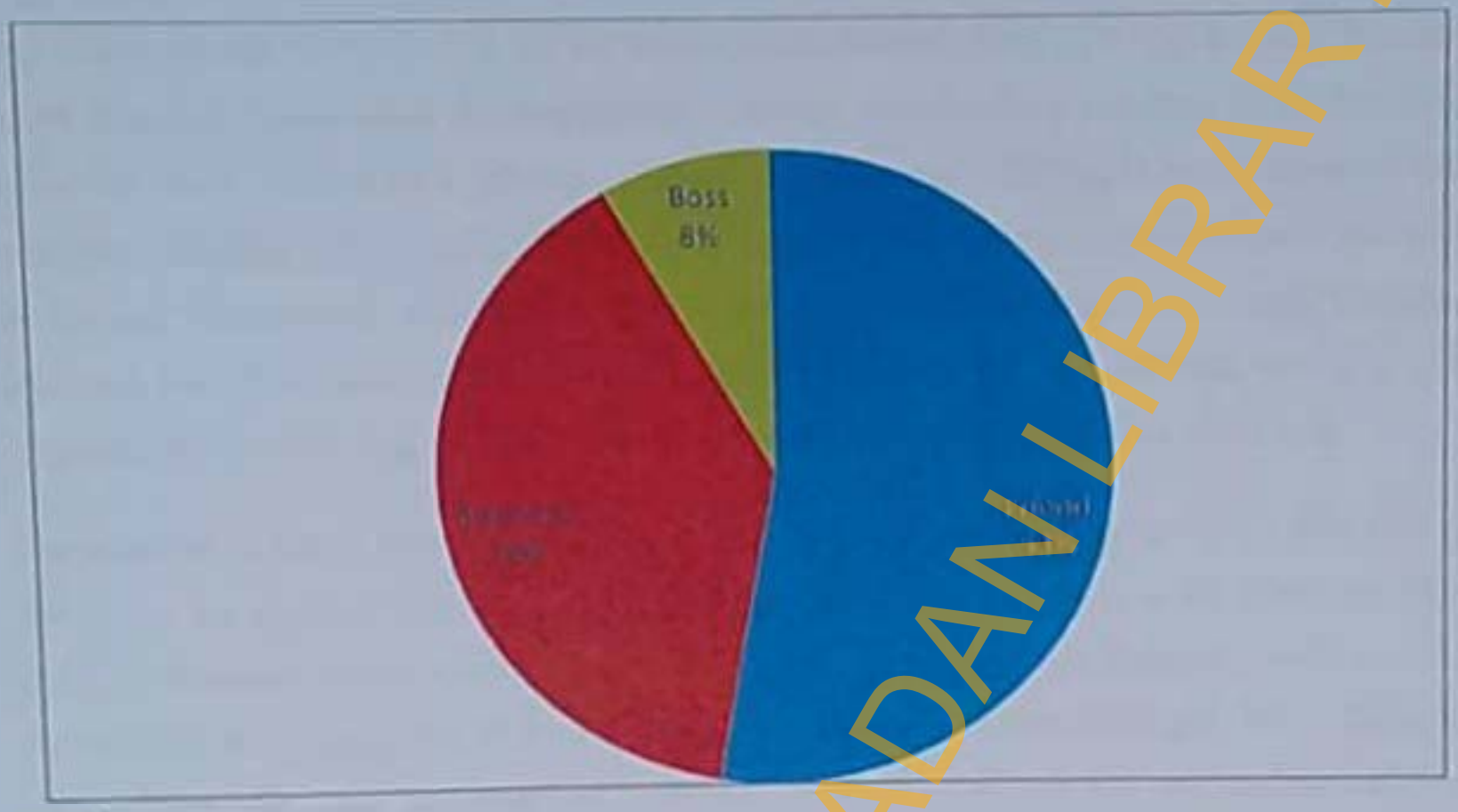


Figure 4.2: Respondents' trainers (N=400)

4.2: Prevalence of motorcycles accidents

Almost all (96.5%) of the respondents said they don't ride motorcycle for commercial purposes alone, majority (84.0%) of the respondents claimed they ride motorcycle for private use while almost half (41.3%) of the respondents claimed they ride motorcycle for pleasure. More than half (54.0%) of the respondents claimed that they had accident in the last one year prior the study white 184 of the respondents representing 46.0% had no accident in the past one year. Slightly below half (37.8%) of the respondents claimed that they have had accident in the last six months. Also sligtly below half (33.1%) of the respondents said they had the accident just once while slightly below half (38.4%) of the respondents reported that the accident occurred during the week days and weekends respectively (see table 4.2).

The number of times that accident occurred in a day is foreseen to be about 306. Out of the 306 times the accident occurred, 65 symbollse that 21.2% occurred in the morning, 66 times (21.6%) occurred in the afternoon, 84 times of the accidents representing 27.5% occurred in the evening while majority of the accidents, 91 (29.7%) occurred at night. When asked about time of the day that the accident occurred. Few (27.5%) of the respondents claimed it occurred in the evening while another few (29.7%) said it occurred at night (see figure 4.3 and table 4.3). Relative to the type of accident, more than half (57.0%) of the respondents said the type of accident was motorcycle to motorcycle while few (17.9%) of the respondents said the type of accident was motorcycle with pedestrian (see figure 4.4)

The research further reveald places where accident occurred, few (19.7%) of the respondents claimed it occurred at the junction while 27.6% reported it was at a bend (see figure 4.5). When the respondents were asked about the condition of the weather at the time of the accident, majority (67.7%) of the respondents claimed the accident occurred when the weather was fine while few (11.6%) of the respondents claimed that the accident occurred when there was heavy rain fall (see figure 4.6).

When respondents were questioned as regards visibility during the accidents, one third of the accident reported by the respondents (33%) occurred when the condition of light indicated night time while below half (32%) of the respondents claimed that the accident occurred when the condition of visibility could be described as bright sunlight (see figure 4.7). Only a few (11.7%) of the respondents reported that the accident happened as a result of answering of phone call, 6.5% of the respondents claimed it was due to break failure while few (10.9%) of the respondents reported that it was due to over speeding (Table 4.4).

Pertaining to the categories of injuries sustained during the accidents, by the respondents, almost half (44.9%) of the injury sustained was bruises and abrasion while burns accounts for 22.3% of the injury sustained during the accidents. Figure 4.9 gives a better graphical representation of the injuries sustained.

For the respondents' parts of the body that were afflected during the accident, few (30.1%) of the body part affected were Lower limbs, 28.0% were Upper limbs while few (15.9%) of the respondents' body parts affected were Head (see figure 4.10). Besides,considering the preventive kits wore during the accident, almost half (49.2%) of the respondents claimed they were not wearing any protective kits during the accident while slightly above half (56.0%) wore crash helmet respectively. (see figure 4.8).On other protective kits wore by the respondents during the caccident (14.7%) said they wore eye google, (13.9%) hand gloves, (4.4%) protective boot, (4.4%) protective jacket and the remaing (3.2%) of the respondents wore protective trousers respectively.(Table.4.5)

Table 4:2: Respondents' prevalence of motorcycles accidents (N=400)

Variable	No	%
Ride for commercial purposes alone		
Yes	14	3.5
No	386	96.5
Ride for private use		
Yes	336	84.0
No	64	16.0
Ride for pleasure		
Yes	165	41.3
No	235	58.8
Accident in thelast one year (n=216)		
Yes	216	54.0
No	184	46.0
Commercial motorcycle accident in the last six months(n=151)		
Yes	151	37.8
No	294	62.3
Numbers of times of involvment in an accident		
Once	50	33.1
Twice	46	30.5
Thrice	36	23.8
More than three times	18	11.9
Can't remember	1	0.7
Period of the week that the accident occurred		
Week days only	57	37.7
Weekends only	36	23.1
Week days and week ends	58	38.4
Can't remember	1	1.6

Table 4.3: Time of the day the accidents occurred (n=151)

Responses*	No	%
Morning	65	21.2
Afternoon	66	21.6
Evening	84	27.5
Night	91	29.7

**Multiple responses*

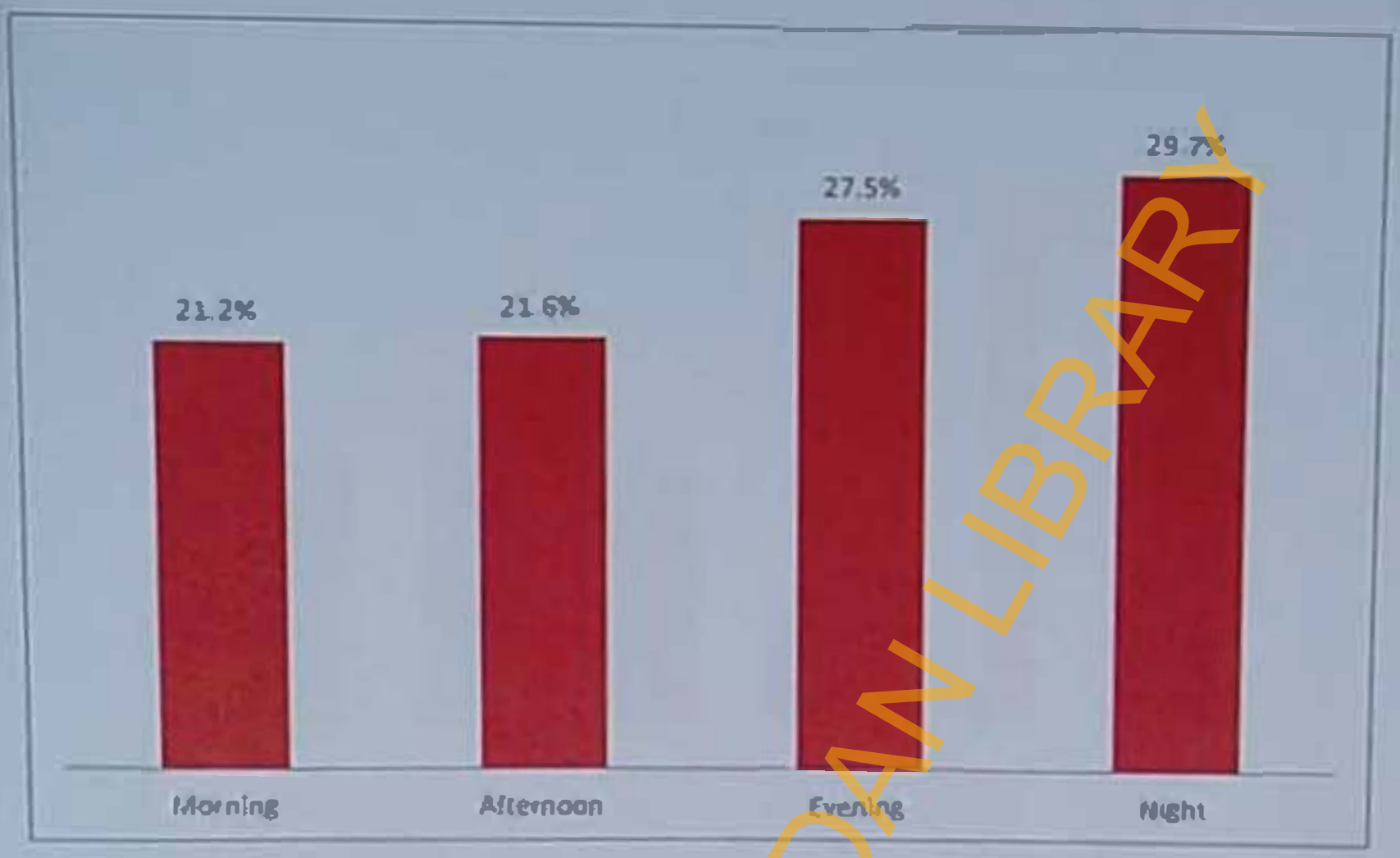


Fig. 4.3: Time of the day the accident occurred (N=151)

Figure 4.4: Experienced by respondents (N=151)

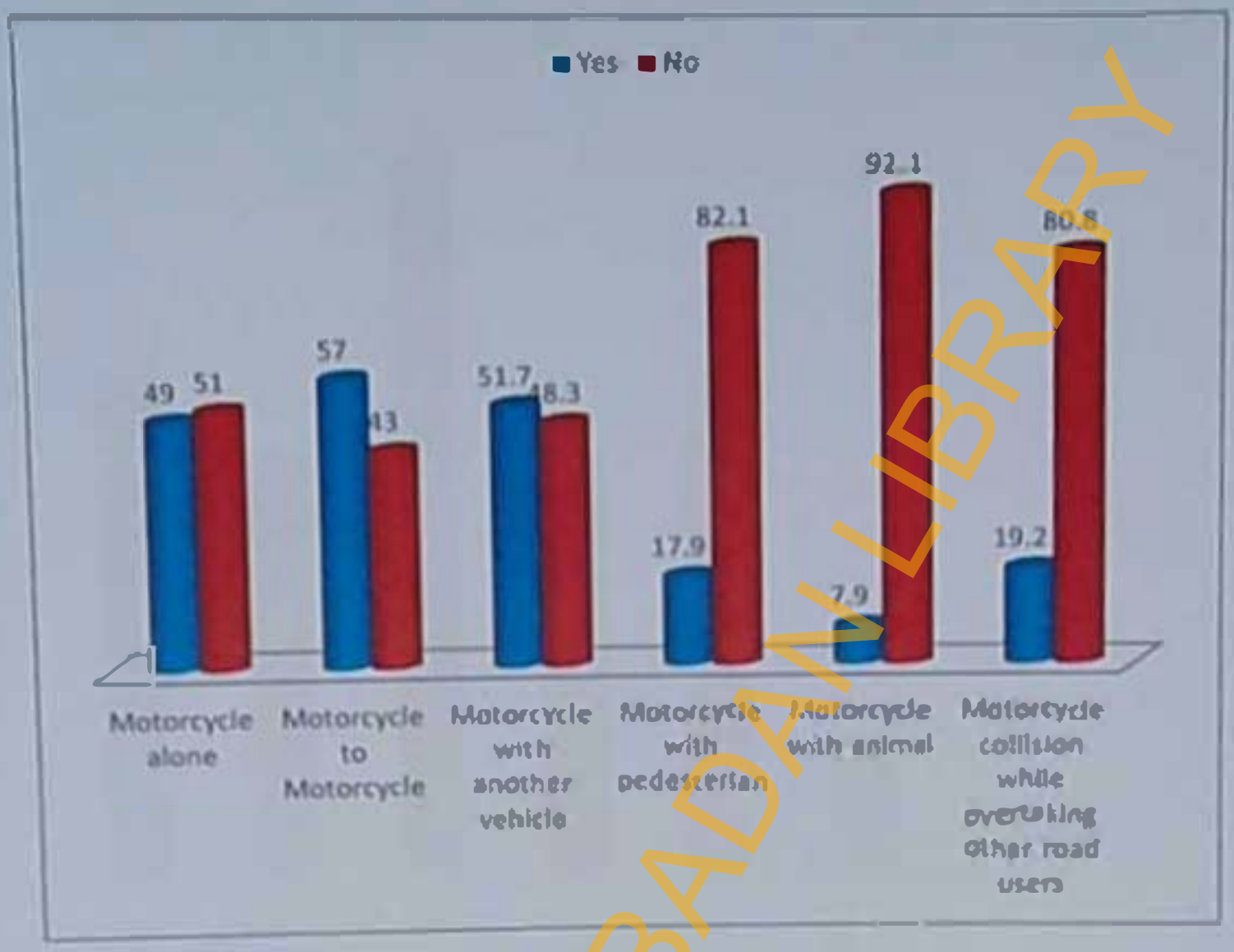


Figure 4.4: Experienced by respondents (N=151)

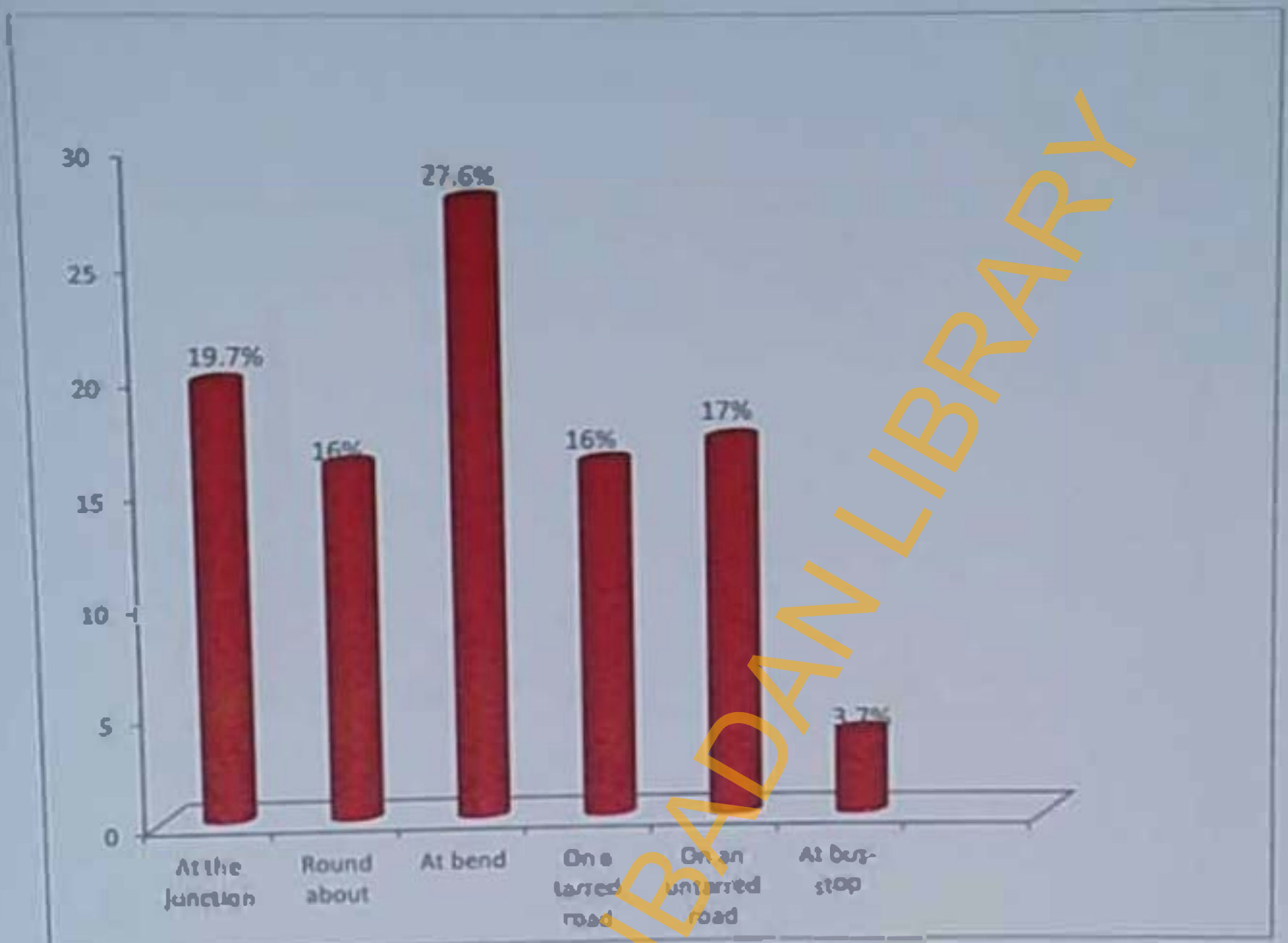


Figure 4.5: Where the accident occurred (N=151)

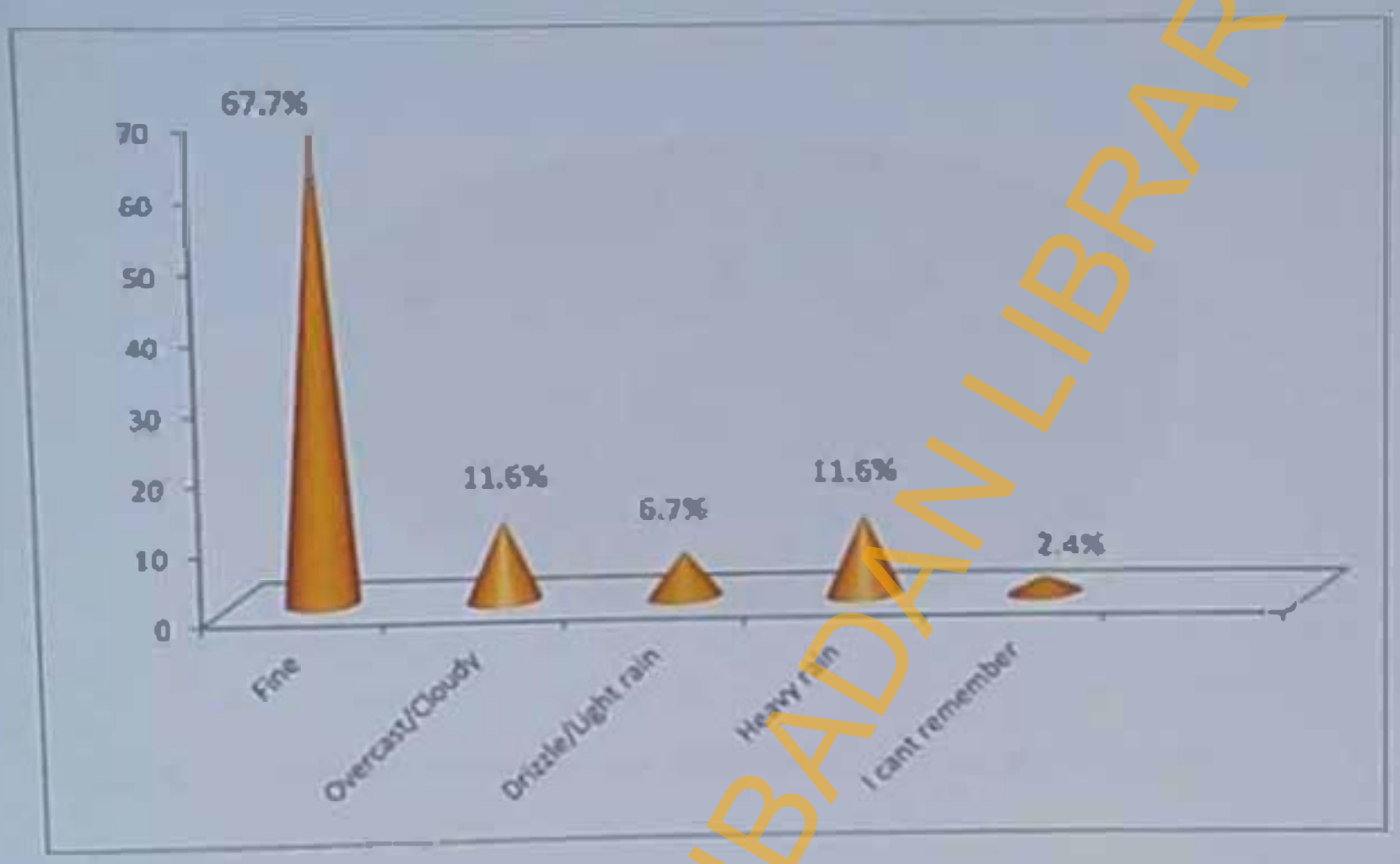


Figure 4.6: Weather condition at the time of the accidents occurred (n=151)

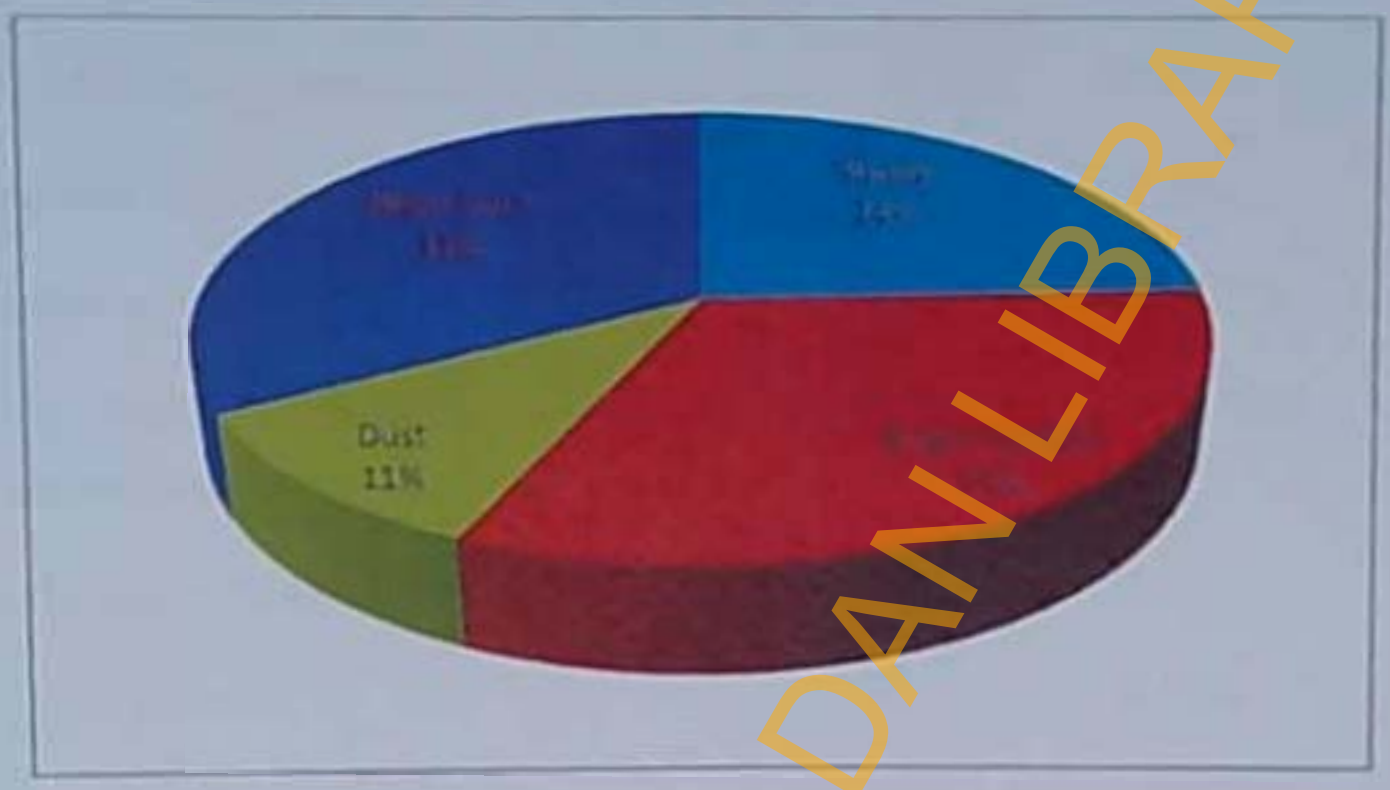


Figure 4.7: Visibility condition as at the time accident occurred (n=151)

Table 4.4: Factors leading to accident (n =151)

variables	No	%
Answering phone call	27	(11.7%)
psychological stress	18	(7.8%)
Fatique	19	(8.3%)
Overload	33	(14.3%)
Hit from the back by another vehicle/ motorcycle	39	(17.0%)
Collision with another vehicle	4	(1.7%)
Brake failure	15	(6.5%)
Over speeding	25	(10.9%)
Slippery road	23	(10.0%)
Mechanical fault	6	(2.6%)
Pot holes	13	(5.7%)
Bumps	8	(3.5%)

Multiple responses

Table 4.5 Use of safety kits during the accidents (n=151)

Variable	No	%
Wore protective kits during the accidents (n=151)		
Yes	74	49.2
No	77	50.8
Wore crach helmet during the accidents		
Yes	84	56.0
No	66	44.0
Other protective kits worn during the accidents*		
Protective jacket	10	4.0
Protective trouser	8	3.2
Protective boot	11	4.4
Eyes goggle	37	14.7
Hand gloves	35	13.9

*Multiple responses

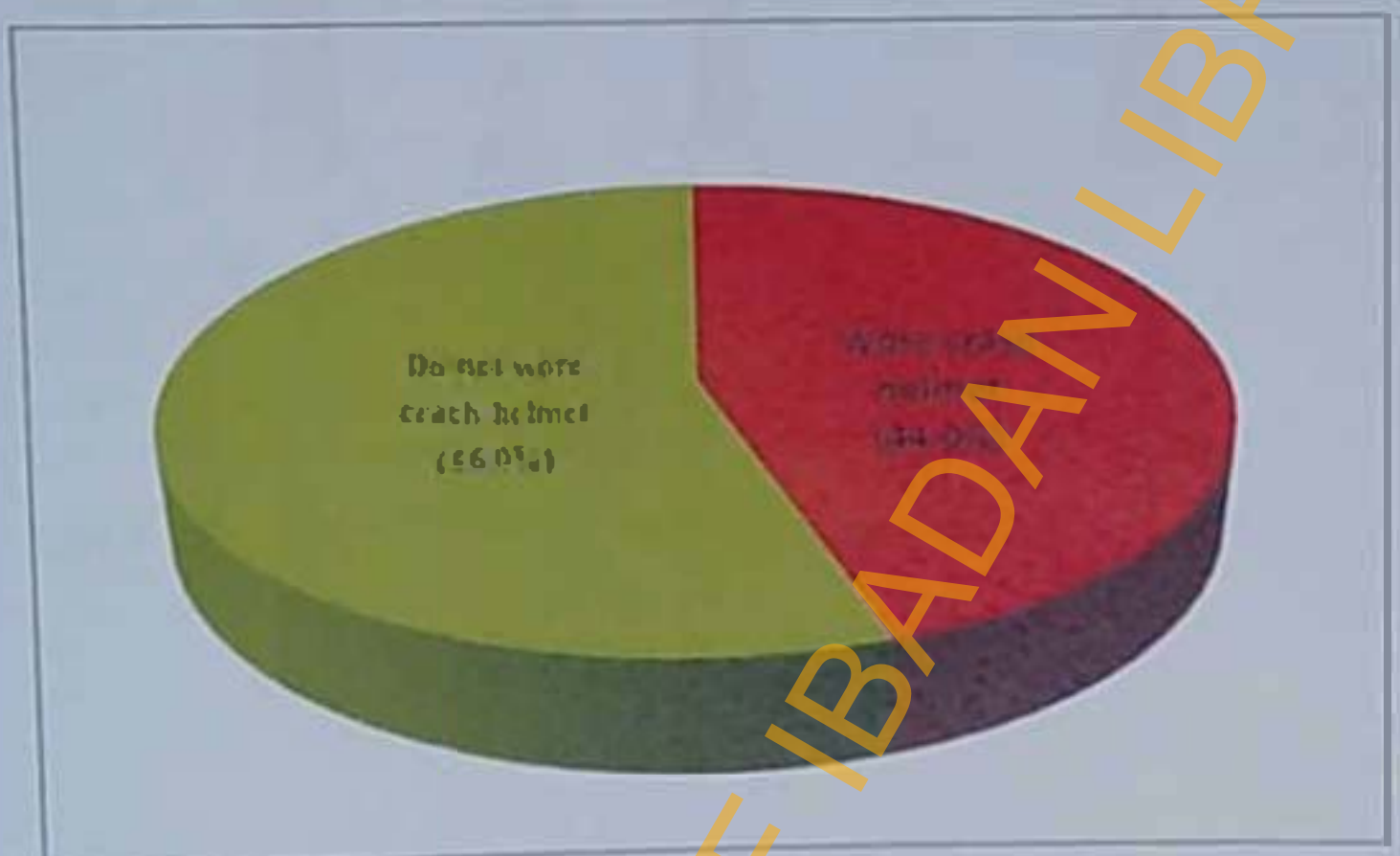


Figure 4.8: Helmet use while riding (n=151)

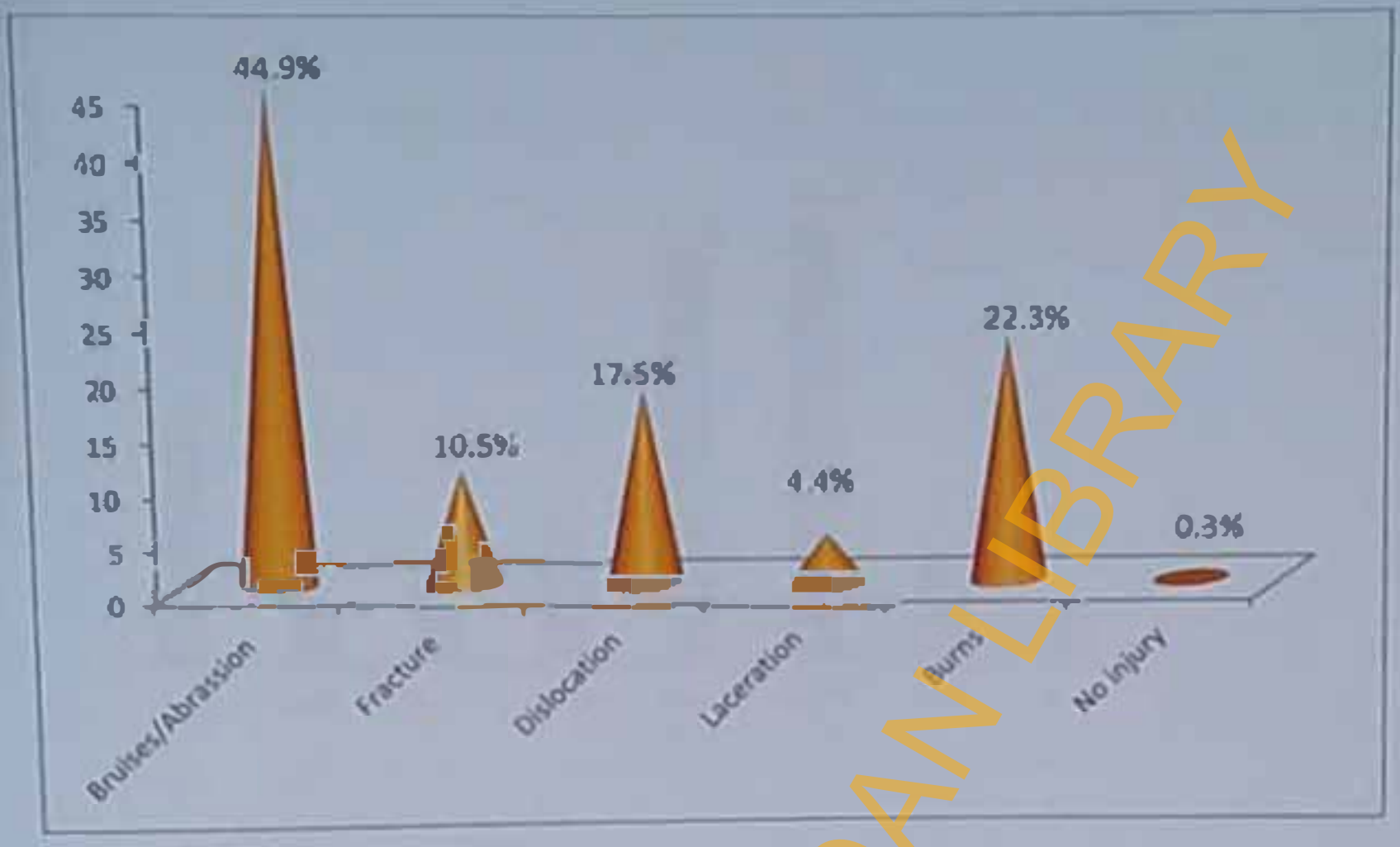


Figure 4.9: Type of injury sustained by the respondents'

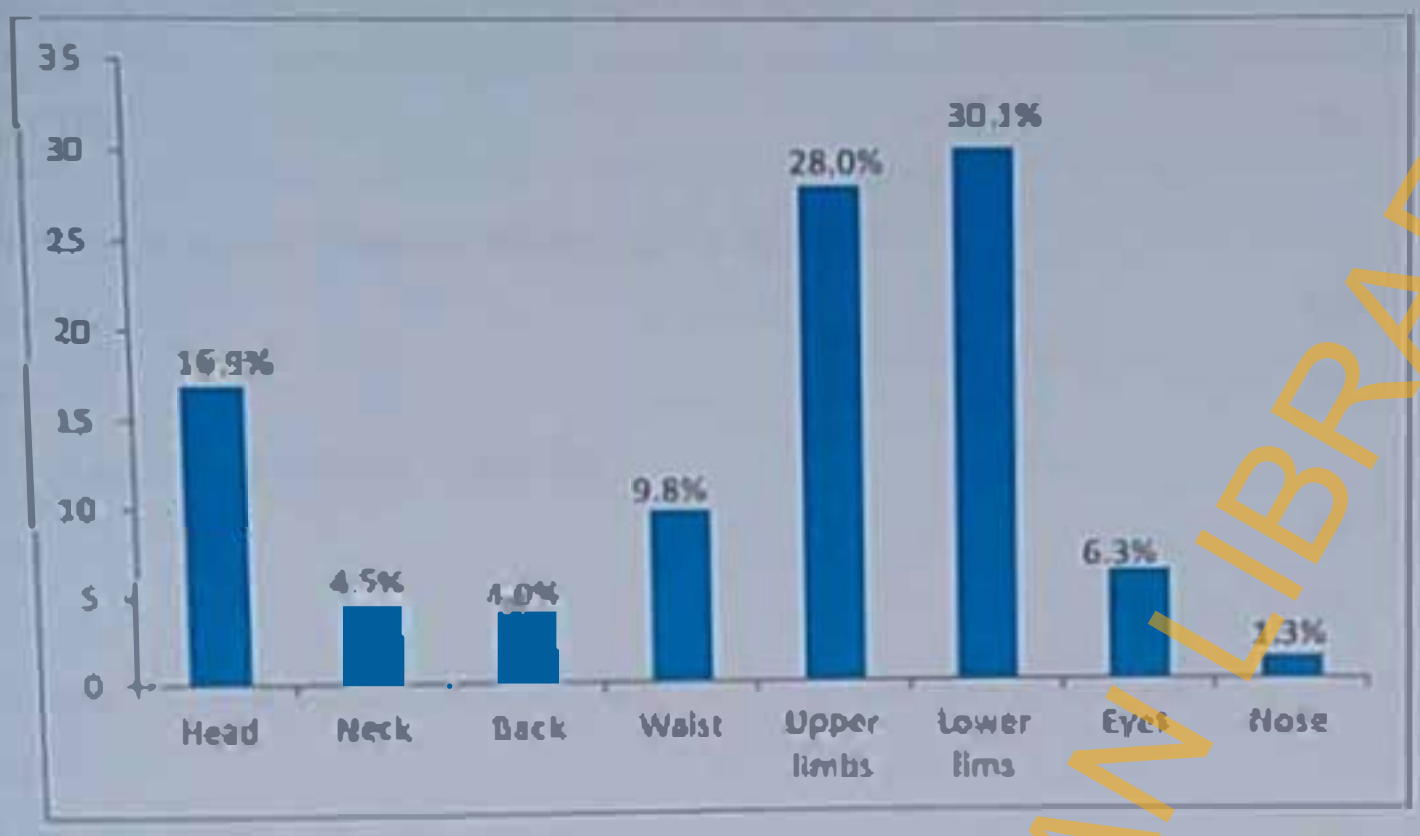


Figure 4.10: Respondent's part of the body affected during the accident (n=151)

Table 4.6 Hospital visited because of the injury (n=151)

Variable	No	%
Visit the hospital because of the injury (n=109)		
Yes	109	72.2
No	42	10.5
Were you hospitalized (n=76)		
Yes	76	69.7
No	33	30.3
Stayed in thehospital for one night or more because of the injury (n=76)		
Yes	39	51.3
No	37	48.7
Amount paid for the treatment in (n=76)		
≤10,000	77	51.0
₦10,001 -₦20,000	17	11.3
₦20,001 -₦30,000	16	10.6
₦30,001 -₦40,000	12	7.9
₦40,001 -₦50,000	15	9.9
₦50,001 -₦60,000	7	4.6
₦60,001-₦70,000	3	2.0
₦70,001 -₦80,000	3	2.0
>₦80,000	1	0.7
Place of treatment after injury *		
Hospital	130	54.2
Patent Medicine Vendors	30	12.5
Traditional bone specialist	57	23.8
Self medication	23	9.6

*Multiple responses

Evidently, not all injured visits the hospital thus respondents were asked if they visited the hospital because of the injury, majority (72.2%) said yes they visited the hospital for treatment while majority 69.7 said they were hospitalized. On whether the respondent were hospitalised because of the injury, above half (51.3%) of the respondents claimed they were hospitalised because of the injury for more than one night while few (48.7%) of the respondents were not hospitalised.

Regarding the amount paid for treatment, (51.0 %) of the respondents paid less than N≤10,000 for the treatment while (11.3%) estimated the amount paid for the treatment as between N10,001 and N20,000. This study notes that few of the respondents represening (10.6%) paid N20,001 and N30,000; (7.9%) paid between N30,001 and N40,000; (7.9%) spent between N40,001 and N50,000 while (4.6%) of the respondents paid between N50, 001 and N60,000 for the treatment. Precisely only a few respondents representing (2.0%) paid between N60,001 and N70,000; 2.0% spent between N70,001 and N80,000 while the only remaining respondent representing (0.7%) paid between N80,001 and N90,000 for the treatment respectively.

Additionally, considering the place where the respondents went for treatment after the injury, slightly above half (54.2%) went to the hospital, (12.5%) patent medicine vendors; (32.8%) traditional bone specialist and the remaining (9.6%) treat themselves by self medication.(Table 4.6)

4.3 Causes of respondents' accidents

It is significant to state that the causes of the accidents were categorized into three. In the human errors category, few (17.4%) of the respondents claimed the cause of the accident was due to bad/slippery road, all (100.0%) of the respondents reported the cause of the accidents was due to over speeding. Small proportion (17.0%) of tho respondents reported the cause of the accident was due to collision with another motorcycle while majority (98.0%) of the respondents claimed the cause of the accident was due to over loading.

Further, the data revealed ninety-eight per cent of the respondents said that the cause of the accident was due to using cell phone while riding, almost all (97.8%) of the respondents claimed the cause of the accident was due to not obeying road signs, majority (82.3%) of the respondents claimed the cause of the accident was due to the fact that the motorcyclist were under-aged while 94.5% of the respondents said the cause of the accident was due to fatigue.

In the technical fault category, majority (96.8%) of the respondents said the cause of the accident was due to busted tire, 96.5% of the respondents claimed the cause of the accidents was due to riding motorcycle that is mechanically faulty, majority (99.5%) of the respondents claimed the cause of the accident was due to brake failure while majority (90.0%) of the respondents reported that accidents was due to stationary object.

Relating to the category that claims accident was owing to natural causes, majority (87.5%) of the respondents claimed the cause of the accident was due to poor weather, only 44.3% of the respondents claimed the cause of the accident was due to sun too heavy, majority (97.3%) of the respondents claimed the cause of the accident was due to heavy rainfall (see table 4.7).

This section highlights the findings on participants' knowledge about the causes of commercial motorcycle accident. The qualitative aspect of this study explored participants' knowledge about the causes of motorcycle accidents among commercial motorcyclist. One of the questions asked was " To mention the causes of motorcycle accidents among commercial motorcyclist?. Some of the responses were as follows:

tipshot from focus group discussion on the causes of motorcycle accidents revealed that most respondents were aware of the causes of motorcycle accidents. The following quotes reflect some of their comments:

"What normally causes accidents is slippery road especially here in Ile because of Nigerian National Petroleum co-operation tankers that do carry petrol and kerosene oil. some times the oil will be leaking and dropping on the road hence it sometimes led to accidents because of over speeding among some of us. Last week one of our members died of such with two people involved along Panseke junction. Another cause is impatience among the commercial motorcyclists: they all seem to pass and overtake this heavy trucks and tipper that carry sand and gravel and with that they will begin to speed unnecessarily. Thus when they encountered any barrier such as an oncoming car, bumps or a pothole, they tend to suddenly match the motorbike brake which often resulted in accidents with severe injuries and even death".

"The commercial buses and taxis are also causes of accidents for the commercial motorcyclist. They can stop anywhere and open their car door to pick their passengers and this usually resulted in accidents for commercial motorcyclists. Also the road is the main problem as far as I am concerned, and slippery road, oily road, riding under the influence of alcohol, smoking Indian hemp, road blocks by the police, lack of pointers in the night and pot holes are the main causes to me "

"As a Muslim, I believe an accident is God's will. it can happen at any time and any day ('Almouta' Death) it is part of human destiny."

The focus group discussant were asked about the causes of motorcycle accidents. There was a consens of opinion among the discussants on the major causes of motorcycle accident. Below are some typical responses from discussants:

- *Overspeeding*
- *Overloading*
- *Burst tyre*
- *Break failure*
- *Careless pedestrian and animal on the road*

- *Drunkenness and smoking of Indian hemp*
- *Ill-health*
- *smoke emission of other vehicle especially tankers and tippers*
- *Overconfidence*
- *Poor sight*
- *Non-concentration or distraction*
- *Poor state of the roads potholes and sharp bend.*
- *Greediness of some cyclist to make more money*
- *Excessive alcohol consumption*
- *Holistic attitude of vehicle owners*
- *Lack of experience and expertise of young cyclist*
- *Old age and lack of side mirrows.*

- *"The first thing that causes motorcycle accident among commercial motorcyclist is their impatience. The second one is the road is not good at all, if two commercial motorcyclists are coming from both ends and there are potholes everywhere, in the bid to navigate the potholes, they end up colliding with each other or with a car or even with a passerby. This sort of occurrence can be quite terrible.*

Table 4.7: Causes of accidents among commercial motorcyclist (N=400)

Variable	Yes		No	
	No	%	No	%
Human errors				
Bad/ slippery roads	395	98.7	5	1.3
Over-speeding	400	100.0	0	0.0
Collision with another motorcycle	398	99.5	2	0.5
Ride when drunk	394	98.5	6	1.5
Over loading	389	97.3	11	2.8
Using cell phone while riding	392	98.0	8	2.0
Not obeying road sign	391	97.8	9	2.3
Wrong overtaking	396	99.0	4	1.0
Under age motorcyclist	329	82.3	71	17.8
Fatigue	378	94.55	22	5.5
Technical faults				
Busted tire	387	96.8	13	3.3
Riding motorcycle that is mechanically faulty	386	96.5	14	3.5
Brake failure	398	99.5	2	0.5
Stationary object	360	90.0	40	10.0
Natural Causes				
Poor weather	350	87.5	50	12.5
Sun too heavy but not wearing glasses	117	44.3	223	55.8
Heavy rainfall	389	97.3	11	2.8

4.4: Knowledge of commercial motorcyclist oo utilisation of safety kits

This segment significantly showed the knowledge of commercial motorcyclist on utilisation of safety kits. Knowledge scale was used to assess the level of knowledge of the respondentson the use of safety kits. Respondent who scored ≤5, were rated having poor knowledge. Those who >5-10 were rated as fair in knowledge and respondents with >10 were rated having good knowledge. Majority of the commercial motorcyclist (76.3%) had good knowledge on utilisation of safety kits in comparison to those who were rated fair and poor in knowledge of safety kits. Conclusively, the mean knowledge score of respondents was 12.3 ± 2.5. (Table 4.8 and Figure 4.10).

It is fundamental to state that majority (91.0%) of the respondents attested to the verity that crash helmet can protect one's brain from injury in case of an accident, 86.3% said that helmet protects one's face in case of an accident. Virtually all (96.0%) of the respondents said the use of eye goggle protect the eyes from dangerous dust and insects. Eighty-six percent of the respondents said hand gloves can protect the hand and fingers in case of accident while almost all (90.8%) of the respondents said that foot wear or boots protect one's leg in case of accident. Another faction (79.8%) said there was nothing wrong in wearing slippers while riding and majority (86.3%) said wearing of fluorescent jacket for riding would make other road users see the commercial motorcyclist hence reduce the incident of accident (Table 4.9).

This section highlights on findings on participants' knowledge about the use of safety kits. The qualitative aspect of this study explored participants' knowledge about the of use crash helmet. One of the questions asked was "To what extent did commercial motorcyclist comply with use of crash helmet and how useful is it? Majority of the discussants stated that the majority of the commercial motorcyclist do not use crash helmet as a protective gear made for covering the head. Some of the responses were as follows:

- *"A crash helmet is a protective cap that is made for covering the head for effective protection. When a cyclist is knocked down by a vehicle or as a result of pot hole or slippery road, helmet serves as a barrier for the skull and brain so as not to sustain injury. I don't like it because many are fake and it is better for you to be conscious on the road so as to prevent accident"*

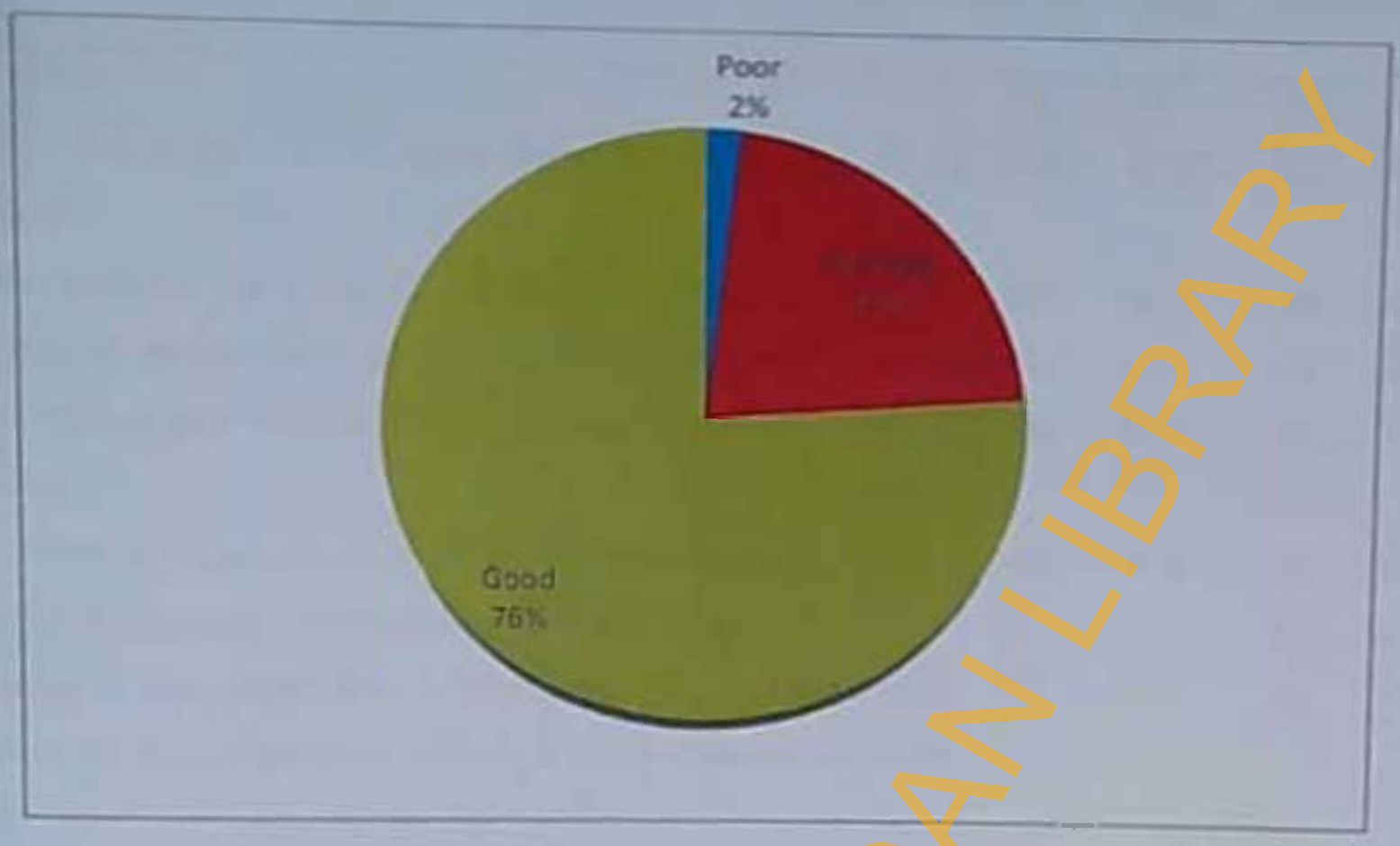
- *It is important to wear 'koto' (Yoruba name for crash helmet) whenever a motorcycle rider is riding, not wearing one is like a driver driving without seat belt."*
- *"Crash helmet protects the head from injury in case there is head on collision with any object especially stone or even the motorcycle itself."*
- *"I like crach helmet and I used it for personol protection, because if a cyclist that has his helmet on hit his head against the ground or any hard surface in an accident, the helmet will prevent him from having injury or scars. See six months ago I had an accident along Abanla deu to slippery road but my crach helmet prevent my skull because I felt inside that Alade-Owo rive."*
- *To me crash helmet should be worn when embarking on long distant trips because it will not allow wind to enter the ear and reduces wind noise roaring by the ears"*
- *"Crach Helmet can reduce head injury, because if a cyclist that is not putting on helmet had head on collision in on accident, it might lead to brain damage or death"*
- *"For me, the I first thing I do is to wear my crash helmet before igniting the motorcycle engine because crash helmet is supposed to be worn all the time when riding. Only God can predict when accident will happen."*

A question was asked relating to the knowledge about the use of eye goggle. Most of the discussants across the group said that eye goggle is very effective for protection of dust and insect while riding especially in the Rural Areas. Some of the responses were as follows:

- *Eye goggle is very good because here in Ido community especially if you are going to an interior villages. The roods are not terd and dust is much. So I used eye goggle with nose mrk to avoid cough and eye problem.*
- *I used eye goggle only when I am going on long distance because I don't like it; I preferred nose mask.*
- *Oga see let be realistic. Government are not helping us, they supposed to be selling all these protective kits at chipper rate or even given us free. To me eye goggle is good and it prevent insect and dust from entering your eyes. I also herd in a radio that constant water tears coming out of the eyes as a result of wind just like that can cause eye problem in future.*

Table 4.8: Knowledge of commercial motorcyclist on safety kits

Grade	Value	No	%	Mean±SD
Poor	≤5	7	1.8	
Fair	>5-10	88	22.0	12.3 ±2.5
Good	>10	305	76.3	
Total		400	100.0	



Knowledge means score 12.3±2.5

Figure 4.11: Knowledge on utilisation of safety kits

Table 4.9: Knowlegde of safety practices by commercial motorcyclist while riding

Variables	No	%	No	%
Helmet can protect one's brain from injury in case of an accident•	364	91.0	36	9.0
Helmet protects one's face in case of an accident•	345	86.3	55	13.7
Eye goggle protect the eyes from dangerous dust and insects•	384	96.0	16	4.0
Hand gloves can protect the hand and fingers in case of accident •	348	86.0	56	14.0
Foot wear or boots protect one's leg in case of accident•	363	90.8	37	9.2
Nothing is wrong in wearing slippers while riding••	81	20.3	319	79.8
Wearing of fluorescent jacket for riding will make other road users to see the commercial motorcyclist and reduce the cases of accident•	345	86.3	55	13.7

•correct response

•• Incorrect response

4.5: Safety measures useds by respondents' to prevent accidents

Almost half (46.0%) of the respondents do not wore crash helmet with their passengers while riding, majority 83.2% of the respondents said they do not insist their passenger to wears crash helmet. A few (39.3%) of the respondents said they wore riding boots when riding and majority (78.8%) of the respondents obeyed maximum speed limit of 50km/hr or ride above the speed limit while riding. virtually all (95.9%) of the respondents said they carried more than one passenger at a time, majority (92.8%) of the respondents said they obeyed traffic signs while aproximately Sixty-five percent of the respondents said they received and made phone calls while riding (Table 4.10).

Based on the FGD finding, the respondents affirmed that it is a very good thing for commercial motorcyclist to be using crash helmet to prevent injury when accident occurred. Explaining further on preventive kits another respondent said

- *I personally don't use it again because the last one I used was fake. I had a minor collision with another motorcycle and the helmet scattered. The ultimate resolution to this setback is that provision should be made for original helmet tobe sold with a new Okada, so all of us will have it.*
- *Helmet and eye glasses are very good because helmet prevent the head and the brain when accident occurred while eye glasses prevent insect and dust from entering ones eyes when riding. But at the moment I don't have crash helmet but I have eye google because I am not driving on the main road I usually operate in the community here in Alade-Oro.*
- *Crah helmet is too expensive and all are fake. I bought one the other time but lasted for only four months and my passage don't like using it because they normally said it carry bad luck from another person head.*

Table 4.10: Safety measures put on by motorcyclist while riding with their passenger(s)

Variables	Yes		No	
	No	%	No	%
Wear crash helmet?	184	46.0	216	56.0
Insist on passengers wearing crash helmet	67	16.8	333	83.2
Wear riding boot	157	39.3	243	60.7
Obey maximum speed limit of 50km/hr or ride above the speed limit	315	78.8	85	21.2
Carry more than one passenger at a time	383	95.8	17	4.2
Obey traffic signs	371	92.8	29	7.2
Receive or make calls while riding	259	64.8	141	35.2

4.6: Attitudinal disposition of commercial motorcyclist towards safety kits

It is pertinent to remark that this section showed the motorcyclist attitude towards safety kits. In view of this, it was ascertained that most of the respondents 360 (90%) had positive attitued about safety kits while a few of them 40 (10%)had negative attitude with the mean of 10.8±2.9 (see table 4.11).

Relevantly, the result shows that the majority (93.3%) of the respondents agreed that crash helmet is a useful safety device for motorcycle users, almost half (41.3%) of the respondents were of the opinion that the use of crash helmet cannot prevent injury while Eighty-five percent of the respondents agreed that crash helmet's law is only enforced when police and other law enforcement agents want to extort money from riders. Below half (24.5%) of the respondents agreed that over speeding is right as long the motorcycle can be controlled, majority (69.8%) of the respondents disagreed that overloading of persons/goods does not constitute a problem as long as it does not disrupt the driver's focus while half (50.5%) of the respondents agreed that motorcyclists are eligible to ride irrespective of their ages (Table 4.12).

Table 4.11: Attitudinal mean score of motorcyclist towards safety kits (N=400)

Attitudinal score	Value	%	Mean±SD
Negative (0-6 point)	40	10.0	
Positive (7-12 point)	360	90.0	10.8±2.9
Total		100	

Based on the FGD finding, the participants affirmed that it is a very good thing for commercial motorcyclist to be using crash helmet to prevent injury when accident occurred. Explaining further on safety kits a participant said that helment and eye goggle is good but it is mainly used by the elderly especially those that are 50 years and above.

- *"I don't like it because of heat and I can not be hanging crash helmet on my bike."*

Table 4.12: Attitude of commercial motorcyclist towards safety kits

Variables	Agree		Disagree		Undecided	
	No	%	No	%	No	%
Crash helmet is a useful safety device for motorcycle users *	373	93.3	20	5.0	7	1.8
Use of crash helmet cannot prevent injury?**	167	41.8	223	55.8	10	2.6
Crash helmet's law is only enforced when police and other law enforcement agents want to collect money from riders.**	324	85.5	53	13.3	5	1.3
Over speeding is right as long as you control the motorcycle **	98	24.5	298	74.5	4	1.0
Overloading of persons/goods is not a problem if it does not disturb the drive.**	114	28.5	279	69.8	7	1.8
Motorcyclists can still ride irrespective of their ages.**	202	50.5	171	42.8	27	6.8

*correct response

** Incorrect response

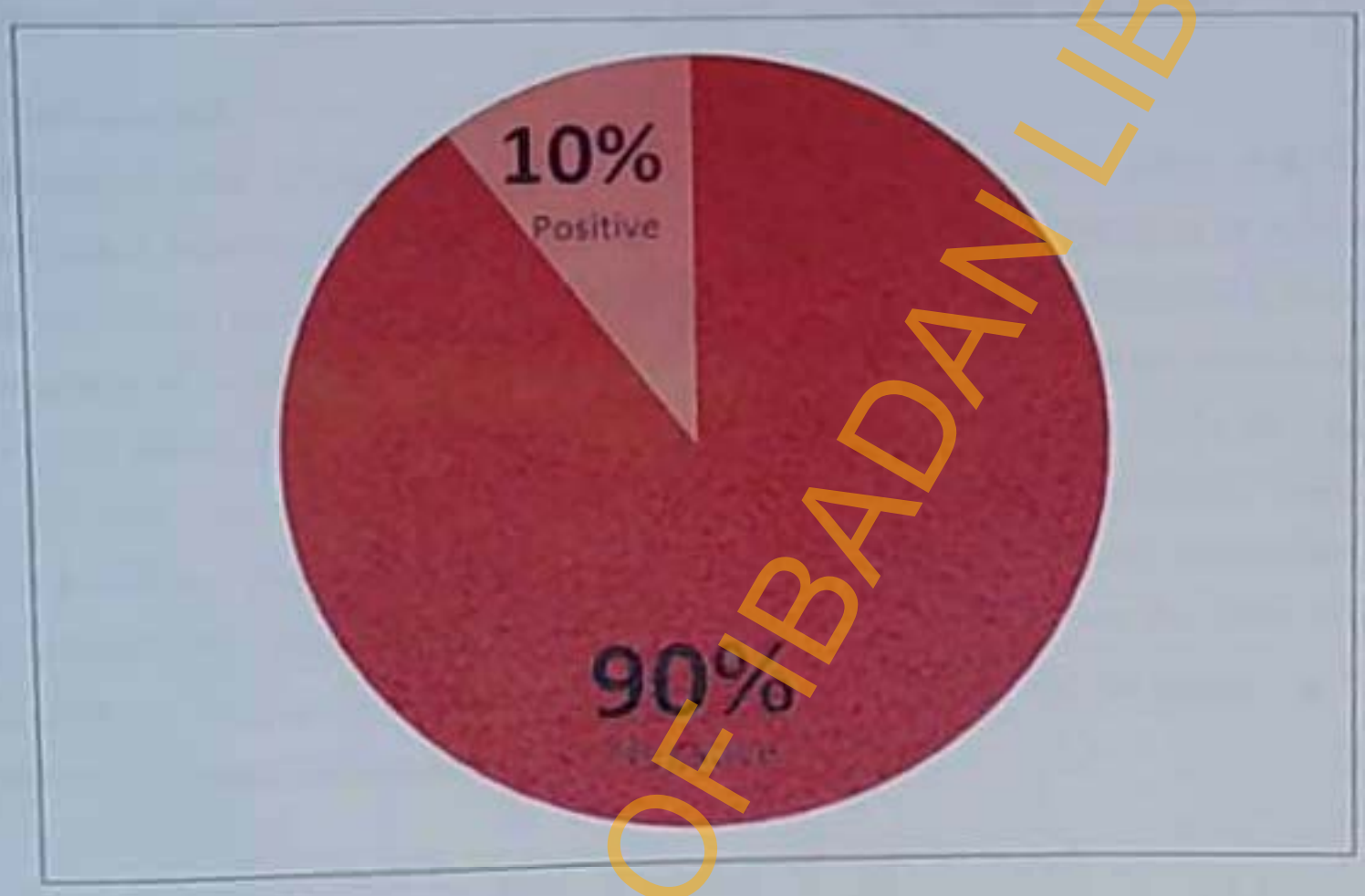


Figure 4.12: Respondents attitude to safety kits

4.7: Hypothesis Testing

The study tested five hypotheses. All the hypotheses were proposed as null hypotheses at 95% confidence level and 5% level of statistical signilnificace otherwise referred to as limit of error with p value of 0.05. The appropriate test statistics used to determine the existene or absence of relationship between the variable of intest for the study was Chi-squre (X^2) and logistic regression model. The research hypotheses were tested by comparison between the respondents' utilisation of safety kits through their socio-demographic variables like years of experience, level of education, knowledge causes and prevalence of accident.

Hypothesis one

Established here is the verity of the first null hypothesis which states that there is no association between educational level of the respondents and prevalence of accident in the last six months were cross tabulated to determine if educational level had an influence on the frequency of accident in the last six moths. Table 4.13 shows that there was no association between educational level of respondents and accident occurence in the last six months. Additionally, the educational level has no role to play on the respondents' years of riding commercially. The null hypothesis, which stated that there is no association between educational level and accident experienced in the last six months was therefore rejected, and the alternate that the respondent educational level had a role to play in accident in the last six months is therefore accepted.

Table 4.13: Relationship between respondents' educational level and experience of accident in the last 6 months

Educational background	Yes	No	Total	χ^2	
	No (%)	No (%)	No (%)		P-value
Noformal education	24 (6.0)	37(9.2)	61(15.2)		
Primary education	39(9.8)	64(16.0)	103(25.8)		
Secondary education	78(19.5)	112(30.5)	200(50.0)	9.517	0.009
Tertiary education	10(2.5)	26(6.5)	36(9.0)		
	151(37.8)	249(62.2)	400(100)		

Hypothesis Two

In the same vein, the second null hypothesis states that there is no association between respondents' years of experience and respondents' prevalence to accidents in the last 6 months was tested.

Table 4.14 indicates the cross tabulation of respondents' year of experience and respondents' prevalence to accident in the last 6 months using Chi-square (X^2) statistics. Thus it reveals that there was a significant association between respondents' year of experience and respondents' prevalence to accident in the last 6 months at 95 per cent confidence interval ($p<0.05$). Respondents' year of experience has no role to play prevalence to accident in the last 6 months. Consequently the null hypothesis was not rejected.

Table 4.14: Relationship between years of experience and accidents in the las 6 months

	years of experience								
Ever had a motorcycle accident in the last 6 months	<1 year No (%)	1Year No (%)	2 years No (%)	3 years No(%)	4 years No (%)	> 5 years No (%)	Total	χ^2	P-value
Yes	2(0.5)	8(2.0)	13(2.9)	15(3.8)	23(5.8)	90(22.5)	151 (37.5)		
No	6(1.5)	14(3.5)	22(5.5)	22(5.5)	17(4.3)	168(42.0)	249 (62.5)	8.24	0.000

Hypothesis Three

Likewise the third null hypothesis stated that there is no association between respondents' attitude and respondents' usage of helmet was tested.

Table 4.15 shows the cross tabulation of respondents' attitude and respondents' usage of helmet, also using Chi-Square (X^2) statistics. The result corroborates the fact that there was no association between respondents' attitude and usage of crash helmet at 95 per cent confidence interval ($p<0.05$). Respondents' attitude has no role to play on the respondents' usage of helmet. The null hypothesis was therefore not rejected.

Table4.15: Relationsbip between attitude and helmet usage

Attitude	Wore crash helmet				
	Yes	No	Total	χ^2	P-value
Positive	96 (24.0)	91 (22.8)	187 (45.8)	2.279	0.517
Negative	119 (29.8)	94 (32.6)	213 (53.4)		
Total	215 (53.6)	185 (46.4)	400 (100)		

Hypothesis four

The fourth null hypothesis, which states that there is no association between respondents' accident in the last 6 months and their probability of wearing crash helmet, was tested.

Table 4.16 shows the cross tabulation of respondents' accident in the last 6 months with their probability of wearing crash helmet using Chi-square (X^2) statistics. There was a significant association between respondents' accidents in the last 6 months and their probability of wearing crash helmet at 95 per cent confidence interval ($p<0.05$). Respondents' probability of wearing crash helmet has a role to play in accident in the last 6 months. The nullhypothesis was therefore rejected.

Table 4.16: Relationship between accidents in the last six months and helmet usage

	Ever had accident in the last 6 months				
Wore crash helmet while riding with passenger	Yes	No	Total	χ^2	P-value
Yes	69 (17.3)	146 (36.5)	215 (53.7)		
No	82(20.6)	103 (25.8)	185(46.3)	2.279	0.001
Total	151 (37.8)	249 (62.2)	400(100)		

Hypothesis five

The fifth null hypothesis, which states that there is no association between respondents' years of experience and their knowledge of motorcycle accidents, was tested.

Table 4.17 denotes the cross tabulation of respondents' years of experience with their knowledge of motorcycle accidents using Chi-Square (X^2) statistics. Researcher discovered that there was an association between respondents' year of experience and their knowledge of motorcycle accident at 95 per cent confidence interval ($p<0.05$). Respondents' year of experience has a role to play on their knowledge of motorcycle accident. The null hypothesis was therefore rejected.

Table 4.17: Relationsbip between knowledge and years of experience

		Koowledge of respondents' on the use of crash helmcnt					
		Poor	Fair	Good	Total	X^2	P-valve
Yers of experience	<lycar	0	2	6			
		0.0%	0.5%	1.5%	2.0		
	One year	3	6	14	23		
		0.8%	1.5%	3.4%	5.7		
	Two years	2	11	22			
		0.5%	2.8%	5.4%			
	Three years	0	9	28	37		
		0.0%	2.3%	7.0%	9.3		
	Four years	0	9	31	40		
		0.0%	2.3%	7.8%	10.1		
	>5 years	2	51	204	257	26.918	0.001
		0.5%	12.7%	51.0%	64.2		
	Total	7	88	305	400		
		1.8%	22.1%	76.1%	100%		

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Socio-demographic characteristics

Basically, all the commercial motorcyclists in this study were males. This is not so surprising because as at today commercial motorcyclist is a male dominated business in the study area and also a predominantly male occupation in Nigeria at large The finding of this study corroborate the existing finding of Adisa (2010) and Nakahara et al (2005) that commercial motorcyclists are more dominated by male than their female counterparts. Majority of the respondents were 16 and 67 years old with a mean age of 31.7±8.9 years which indicates that most of them are young motorcyclist.

As noted from the analysis of findings, the study found that some fractions of the respondents were be between 15-25 years, these categories of people are in their late adolescence and early adulthood years and are characterized by high driving risky behaviours, always in a hurry and aggressive, this finding was in support of earlier findings of (Ngim and Udosen, 2007; Chang and Yeh, 2007; Yannis et al, 2005; and Horswill and Helman, 2003) that age of motorcycle riders was a determinant factor responsible for the causes of accidents among the commercial motorcyclists. This is not unconnected with the declining economy in Oyo State and the country at large where youths are involved in commercial motorcycle business to cater for themselves and their families.

Importantly, the outcome of this study is in line with a research conducted by Galukade et al, in (2009) which documented <18 years among commercial motorcyclist in Tanzania. In another study conducted in Adamawa by Ogunsanya and Galtima (1993), it was revealed that the peak age of commercial motorcyclist riders was 18-30 years. The job attracts mostly young people who are looking for a source of income or alternative source of income for family expenses among those who are married Significantly, the outcome of the study revealed that all the respondents were male. The result of this study corroborates the existing finding of Adisa (2010) and Nakahara et al (2005) that commercial motorcyclists are more dominated by male than their female counterparts. The study revealed that majority of the motorcyclists were 'Yoruba-Muslims'. This is because the study was conducted in Ido, a predominately Yoruba community in Oyo State where majority of the respondents' practice

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Islam as a religion. In this study, slightly above half of the respondents were married. This corresponds with a Study conducted in the same study area by Abokede (2010) which documented married (50.8%) commercial motorcyclist in the Ido local Government Area of Oyo State. Among the Yoruba's, late marriage is discouraged. It is not uncommon for even jobless males in the study area to be married even if there is no sustainable means of survival for their family.

Furthermore, the result of the study acquaints one with the fact that the majority of the respondents had formal education, with a large proportion of them having secondary education. Essentially, this is in support with the outcome of a study conducted in Yola North Easthern Nigeria were about half of the commercial motorcyclist had formal education. In another study conducted by Abokede in the same study area in (2010) reported that majority had formal education. In Oyo State where Ido LGA is located, primary education has been free for a long time and secondary education has been subsidised over the years. This might be a reason why many of the commercial motorcyclists have formal education.

Accordingly, the data collected in this study is a signifier that almost all the respondents did not receive formal training for riding commercially. Each of the riders either trained himself, trained by a friends or relatives on how to ride commercially. Abokede (2010) reported similar trend in her study carried out in the same study area were of commercial motorcyclist had no formal training on how to ride commercial motorcycles. Another study by Fadekemi, Ogini, Vincent, Ugboko, Richard and Adewale (2007) documented a similar situation in their studies carried out in Ile-Ife and Lagos which are located in the South Western Nigeria: same as Ibadan. This is consistent with the existing studies of Akinlade (2000) and Adisa (2010). This possibly accounted for why the rate of accidents among commercial motorcyclist was on the increase because there was not enough adequate training giving to the commercial motorcycle riders before embarking on riding expenditure. Most of their respondents had no formal training on riding commercially. This might be one of the critical factors why commercial motorcycle accident is on the increase, because those who ride motorcycle for commercial purposes are not permitted by the government to do so.

5.2 Prevalence of motorcycle accidents

The study is an indicator that there exists a high prevalence of accidents and injuries among the commercial motorcyclists in the study area. Below half of the motorcyclists had been involved in at least one accident before six months preceding the study. The high prevalence of accidents which involved motorcyclists in the study area was a source of concern. According to the National Highway Traffic Safety Administration (2002) of the USA, motorcycle injuries are getting worse. In Nigeria, several studies support the claim that motorcycle accidents account for the highest proportion of accidents, thus accounting for 54% of road traffic accidents in Nigeria (The Punch, 2007).

The findings of this study also show that slightly more than half of the accidents involving motorcyclists occurred during the evening and the night. The most commonly reported place of occurrence of accident was at a bend and at a junction accounting for the most common causes of accidents in the area. These are all technical factors. The finding of this study was contrary to the finding of Parks (2000) which stated human factors often account for much of the road traffic accidents. The FGD findings also supported the claim that human factors such as lack of experience, bending motorcycle steering, oil spillage and alcohol consumption are the most common cause of motorcycle accident among the commercial motorcyclist.

Of note is the actuality that injuries frequently sustained by motorcyclists; according to this study were predominantly bruises and lacerations. The findings of this study corroborate with a prospective review of motorcycle-related maxillofacial injuries among Nigeria intra-city road users which revealed that soft tissue injuries or combination with bone injury accounted for most of the injuries reported in accidents involving motorcyclists (Oginni, Ugboko, Ogundipe and Adegbehingbe, 2006).

5.3 Causes of motorcycle accident

Distinctively, factors influencing the rate of commercial motorcycle accidents have been found to include: overspeeding, slippery road, wrong overtaking, pot holes, bad roads, mechanical defect, and alcoholic intake. This assertion agreed with the previous studies of (Meuleners et al, 2007; Nahakara et al, 2005; Ngim and Udosen, 2007; Horswill and Helman, 2003; Nigerian highway codes, 2008; Adisa, 2010; and Ogagiogene, 2011) respectively. Other factors as found in the study responsible for the high rate of accidents among commercial motorcyclist are tyre defect, traffic lights bombs, oil spillage on the road, animal crossing, overloading, wrong maneuvering and bending motorcycle steering. The

finding was in support of the view of (Odero, et al 1997; Akinlade, 2000; and Nigeria Highway codes, 2008). Poor knowledge of traffic code and was also found to be a significant factor responsible for high rates of accidents among commercial motorcycle riders. Consistent with previous studies (Akinlade, 2000; Akinlade and Brieger, 2004; Pai and Saleh, 2007; Chang and Yeh, 2007; Ogungbogene, 2011; and Rosembloom et al, 2011) commercial motorcyclist carry more than one passenger. The motorcycle riders do not ride with their driver's license and they do not put on their safety helmets for protection in case of accident. This could account for the severity of crash when commercial motorcyclists are involved in accidents (Mayrose, 2008).

Furthermore, an alternative finding of interest on alcohol consumption revealed that about one third of the respondents drunk one sachet of alcohol regularly, few respondents said they consumed six sachet of alcohol while about a quater consumed local palm wine. The finding revealed that commercial motorcycle rider's consumed alcohol hence this might be responsible for the high rate of accident among them. Above halfof the respondents reported alcohol consumption. The result agreed with the finding of Hermans et al (2008) which stated that alcoholic drinks are one of the strong determinants of most motorcycle accident in twenty-one European countries sampled by the author. The finding of this study also corroborate with the findings of Elliot et al, (2007) and Adisa, (2010).

5.4 Knowledge of utilisation of safety kits

The research ascertained below half of the motorcyclists reported that they don't use crash helmet. Knowledge about the use of safety kits was high among the motorcyclists. This finding was in line with the earlier finding of (Akinlade, 2000, Ichikawa et al, 2003 and Mayrose, 2008) which stated that average motorcycle riders do not use safety helmet while riding. Another study revealed that the Helmet use in developing countries is very low (Odelowo, 1994; Oluwadiya, Oginni, Olasinde, Odu, Olakulehin and Olatoke, 2004). This study documented a low prevalence of crash helmet use, albeit a low prevalence of helmet ownership. The gap in knowledge of the utilsation of helmet eye goggle, hand gloves, protective boat and protective jacket may explain why adoption of safety kits is low among many motorcyclists. Since all did not receive formal training for the job from FRSC, they possibly lacked basic knowledge of safety kits and the need for a commercial motorcyclist to be using them.

The study found that themajority commercial motorcyclist do not know the actual speed limit they are expected to maintained while riding. Their responses reflected that they seems to know the speed limit, but the kilometer per hour (km/hr) with which they drove shows that they do not know, drove above 50km/hr which was the normal speed limit that they are expected to maintained.

5.5 Attitude of commercial motorcyclists towards safety kits

The findings in this current study showeS that almost all (91.0%) of the commercial motorcyclists agreed that motorcycle helmet is the best protective device for all motorcycle users. They also affirmed that the use of crash helmet can prevent motorcycle injury. Therefore, the respondents reported that it is necessary to wear the crash helment while on riding the motorcycle. This was corroborated by the result generated from the findings of NHTSA in 2004 where they stated that motorcycle helmets provide the best protection from head injury from motorcycle accident (NHTSA, 2004). This finding is futher corroborated by NHTSA in the study they conducted in 2006 from this part of the world They reported that motorcycle helmets have been found to be effective in reducing both head and brain injuries by most respondents. Thompson, Rivera and Thompson in 2000 also reported that effectiveness of helment in reducing head and brain injuries having shown consistently the reduction in injuries between the ranges of 63%-88%.

5.6 Implications for Health Education

Health Education focuses on the modification of people's behaviour and behavioural antecedents (Green and Kreuter, 1991). Health education is thus concerned with helping people to change their negative attidues to positive once. (WHO. 1988). Health education ptinciples and strategies can be used to address the challenges identified in this study.

Results from this study document a higer prevalence of motorcycle accidents among commercial motorcyclist. Majority perceived accident to be caused by human factors such alcohol consumption and overspeeding. Effective health promotion and education strategies such public enlightenment through the information education and communication media will help to address the scourge in the study area and the country at large.

Findings from this study revealed that majority of the commercial motorcyclists had a good knowledge of safety kits. Majority perceived crash helmet to be the major protective kits by commercial motorcyclist but their utilisation was low. These situations could create

misconceptions that can have discouraging effects on the use of crash helmet among commercial motorcyclists. In the light of the above, there is need for training programmes too address this problem. Efforts need to be made to increase the knowledge of commercial motorcyclists on the use of crash helmet and other protective kits. For such training programmes to be effectively implemented, the Federal Road Safety Commission should be actively involved. It is imperative to base such training programmes on well conducted training needs assessments. The training objectives should focus on the following: crash helmet as a safety measure, importance of crash helmet and provisions of the crash helmet related laws in Nigeria, Encourage the use of eye google, Foot wears or boolst.

People's opinion about safety generally, as well as and their views about helmet wearing in particular are useful pieces of information that can be used to design a helmet usa public enlightenment programme (WHO, 2006). Results of the study suggested that generally commercial motorcyclists harbored myths and misconceptions about the crash helmet and majority of the motorcyclists were not in favour of mandatory use of the crash helmet. Effective educational strategies such as peer education and public enlightenment are needed to tackle them. Continuous campaign through the mass media will help to address the misleading beliefs about the use of helmet, and modify attitudes to helmet use, reinforce appropriate helmet use practices, bolster public support for the programme and gain motorcyclists acceptance of use of crash helmet over time.

Helmet use in developing countries is very low (Odelowo, 1994; Oluwadiya, Oginni, Olasinde, Odu, Olakulehin and Olatoke, 2004). This study documented a low prevalence of crash helmet use.The sudy also documented a very low prevalence of other safety kits like eye google and foot wears. For instance, Elvik and Van (2004), has noted that studies in developing countries suggested that mandatory helmet-wearing in a 25% reduction in head injuries involving motorcyclists.This suggests that the mobilization and involvement of the community and appropriate authorities can promote use of crash helmet. In the light of this, the Federal Road Safety Commission (FRSC) should identify and partner with authorities and communities to be involved in the promotion of the crash helmet use. Making low cost but high quality helmets available and enforcing their use might be helpful. Cost and heat were cited as constituting key disincentives for the use of the crash helmet. A technological approach aimed at addressing these major concerns is worth exploring with a view to making the crash helmet used in Nigeria weather appropriate.

Furthermore, a sustainable helmet use programme in Nigeria needs to be anchored on sound advocacy that will complement other educational strategies. The advocacy aimed at promoting crash helmet use should be targeted at various stakeholders including all the motorcycle riders, law enforcement agencies, communities, local authorities and policy makers. The enforcement of the crash helmet policies or regulations should be made sustainable. The Federal Government through the Federal Road Safety Commission embarked on the enforcement of the policy that makes wearing of the crash helmet mandatory in the country in January 2009. The enforcement of the policy by the law enforcement agencies was not sustained. Most commercial motorcycle riders in Ido Local Government Area discontinued use of the crash helmet about a month later when the law enforcement agents developed lukewarm attitudes to the enforcement of the policy (Abokede, 2010).

The outcome of this study shows that commercial motorcyclists had a negative attitude towards safety kits safety kits (crash helmet). Majority believe nothing is wrong in riding motorcycle without crash helmet. These behaviour could create negative effects on not use of crash helmet among commercial motorcyclists. In the light of this, there is need for training programmes on the dangers of riding commercially without any protective kits.

Results of this study indicate that the prevalence of accidents is high among commercial motorcycle riders in the study area and those involved sustained some injuries. There are several factors contributing to the occurrence of these accidents. It is therefore necessary to upgrade commercial motorcyclists' knowledge and skills relating to the first aid management of accidents induced-injuries. This could be part of a pre-service or in service road safety education for all commercial motorcycle riders.

5.7 Conclusion

Based on the findings of the study, the following conclusions are drawn. The study participants were found to be prone to accidents and injuries. This is consistent with the rising trend of road traffic accidents and injuries in Nigerian communities involving motorcycle riders. Human factors such as overspeeding, slippery road, collision with another vehicle and alcohol consumption appear to contribute a higher percentage of threat to frequent motorcycle accidents among commercial motorcyclist in the study area. The study also shows that majority of commercial motorcycle riders did not use preventive measures to prevent accident due to their negative attitude about its effectiveness in preventing head injuries.

cost, weak enforcement of the crash helmet use and inconvenience. Also majority carried two or more passengers at a time, do not use other safety kits like eye goggle, protective boots and docs not ride with their valid driver's license, all which is forbidden in the safety highway codes.

5.8 Recommendations

1 Commercial motorcyclist should attend a motorcycle rider-training course to learn how to safely and skillfully operate a motorcycle.

2 It is essential for policy makers to consider measures for increasing helmet use such as enactment of legislations for mandatory helmet use. The enforcement measures should incorporate complementary prevention strategies such as community mobilization and public enlightenment. It is important to adequately educate the public before enforcing a law on crash helmet.

3 The Federal Road Safety Commission should sustain the enforcement of mandatory use of the helmet by ensuring that violators of this law are sanctioned. Effective enforcement of the law will increase people's support for the crash helmet, promote its use and reduce incidence of head injuries among motorcyclists.Funds should be made available by the government for the creation of road safety awareness using different media of communication as a form of National orientation.

4 Road situation in Nigeria should be improved as bad roads need to be repaired.

5 There should be strict penalties against anybody caught riding motorcycle under the influence of alcoholic drinks and alcoholic joints should be closed by the government.

6 Helmet must be made compulsory for okada riders to prevent head injuries, if accident occurs.

7 On-the-job training on road safety measures, as well as sustained public awareness and enlightenment campaign regarding the importance of the crash helmet use and other protective gears in Nigeria among all motorcycle riders should be implemented.

8 Lastly, the Nigerian government should provide employment opportunities for teeming youth as this will go a long way in the reduction of number of youth who as a result of unemployment took to motorcycle riding business.

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APPEXDIX I

List of wards selected in Ido Local Government Area (ILGA)

Wards	Name of Units	Units selected
Ward Four (Apete)	1. Alapata*	1, 4, 5 and 7
	2. Awolon	
	3. Balogun	
	4. Akufo*	
	5. Ijokodo*	
	6. Ologun-Eru	
	7. Apete Central*	
Ward Five (Idiya)	1. Abapaanu*	1, 2 and 3
	2. Alexandra*	
	3. Bembo/Yemtol*	
	4. Aba Ayinde	
	5. Idiya	
Ward Eight (Ido)	1. Oloro Unit*	1,2 and 4
	2. Oyinwehinde *	
	3. Omi market 1	
	4. Jagun *	
	5. Aba Afa	
	6. Omi market 2	
Ward Nine (Omi-Adio)	1. Abidogun*	1,3 and 7
	2. Aladeowo	
	3. Wire & Cable 1*	
	4. Wire & Cable 2	
	5. Owode Estate 1st gate	
	6. NNPC 1	
	7. NNPC 2*	
	8. IyaninaTipa	
Ward Ten (Ogundele Alawo)	1. Ojimi	2,3, and 6
	2. Oloko *	
	3. Elere*	
	4. Adebayo	
	5. Onisere	
	6. Olorunturno *	
	7. Aba-Ayinde	

*Units selected

APPEXDIX II

Ward and units selection from study area (ILGA)

WARDS	UNIT	UNIT SELECTED	APPROXIMATION
4	7	7/36 X 20/1 = 3.8	4
5	5	5/36 X 20/1 = 2.7	3
7	5	5/36 X 20/1 = 2.7	3
8	6	6/36 X 20/1 = 3.3	3
9	8	8/36 X 20/1 = 4.4	4
10	5	5/36 X 20/1 = 2.7	3
6	36		20

APPEXDIX III

Questionnaire distribution in the ward selected in (ILGA)

WARD	UNITS	UNITS SELECTED	QUESTIONNAIRE FOR EACH UNIT
4=Apete	4	$^{4}/_{20} \times {}^{400}/_{1} = 80$	80
5=Idiya	3	$^{3}/_{20} \times {}^{400}/_{1} = 60$	60
7=Gbekuba	3	$^{3}/_{20} \times {}^{400}/_{1} = 60$	60
8=Ido	3	$^{3}/_{20} \times {}^{400}/_{1} = 60$	60
9=Omi Adio	4	$^{4}/_{20} \times {}^{400}/_{1} = 80$	80
10=Ogundele	3	$^{3}/_{20} \times {}^{400}/_{1} = 60$	60
	36		400

APPEXDIX IV

INFORMED CONCENT FORM

I am Yusuf Toriola from the Department of Health Promotion and Education Faculty of Public Health. College of Medicine University of Ibadan; I am conducting a research focusing on *knowledge of motorcycle accidents and utilisation of safety kits among commercial motorcyclist in Ido Local Government Area Oyo State.* The information gathered from you will be useful for planning educational programmes relating to the way of preventing rick of motorcycle accident among commercial motorcyclist. I wish to kindly request your voluntary participation by providing answers to the following questions honestly as this will increase the quality of the findings. Please be assured that all information provided by you would be kept strictly confidential and will be used for pure academic exercise.

Kindly indicate your willingness to participate or otherwise by ticking (✓) the appropriate box below: I want to participate. I don't want to participate. (If answer is NO stop the interview).

Thanks for your co-operation.

Signature/ThumbPrint of the respondents

Signature of interview and date

For official use only

Serial Number

Interviewer's Name:

Date

YUSUF. A Toriola y.toriola@yahoo.com08163471328

APPEXDIX V

QUESTIONNAIRE

KNOWLEDGE OF MOTORCYCLE ACCIDENTS AND UTILISATION OF SAFETY KITS AMONG COMMERCIAL MOTORCYCLIST IN IDO LOCAL GOVERNMENT AREA, OYO STATE

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE MOTORCYCLIST

1 Age at last birhday_____

2 Marital Status: 1. Single 2.Cohabiting 3. Married 4. Separated
5. Divorced 6. Widowed

3 Religion: 1. Christianity 2. Islam 3.Traditional 4. Others specify_____

4 Ethnic group: 1. Yoruba 2. Hausa 3. Igbo 4. Others specify_____

5 Educational background: 1. No formal education 2. Primary education not completed
3. Secondary education completed 4. Tertiary Education 5.Others please specify__

6 Which type of motorcycle do you ride? 1Yamaha 2. Suzuki. 3.Honda .4 Bajaj
5.Others
please specify ?_____

7 How long have started riding motorcycle? _____

8 Did you have any form of training before you started riding commercially? 1. Yes
2. No *(If "No" go to question 12)*

9 Who conducted the training?_____

10 For how long did the training take place?_____

11 Did you complete the training? 1. Yes, 2. No

12 Do you take alcoholic beverage? 1. Yes 2. No

13 If yes, how often do you drink in a day?_____

14 Do you smoke? 1. Yes 2. No

15 If yes, how often do you smoke?_____

16 Do you own a valid motorbike driving license? 1. Yes (valid) 2. Yes (Not valid)
3. No *(If "No" go to question 20)*

17 *If yes to Q16*, do you undergo any form of test before getting the license? 1. Yes 2. No

18 How often do you carry it with you while riding? 1. Always 2. Sometimes 3. Never

19. For how many years have you obtained the motorbike drivers' license? _____

SECTION B: PREVELENCE OF MOTORCYCLE ACCIDENTS

20. Do you ride for commercial purposes alone? 1. Yes 2. No

21. Do you ride for private use as well? 1. Yes 2. No

22. Do you ride for pleasure as well? 1. Yes 2. No

23. Have you ever had a motorcycle accident in the last one year? 1. Yes 2. No

24. Do you have accidents in the last 6 months? 1. Yes 2. No*(If NO go to Q to 44)*

25. If Yes to *24*, how many times have you been involved in accident? _____

26. What period of the week did you had the accident?

1. Weekday 2. Weekend 3.Weekday and Weekend 3. Can't remember

27. What time of the day did the accident occur? *(Tick (✓) all options that applies)*

1. Morning 2. Afternoon 3. Evening 4. Night

28. What type of accident was it?

S/N	Type of accidents	YES (1)	NO (2)
A	Motorcycle alone.		
B	Motorcycle to motorcycle.		
C	Motorcycle with another vehicle.		
D	Motorcycle with pedestrian.		
E	Motorcycle with animal		
F	Motorcycle Collisions while overtaking other road users.		

29. Where exactly did the accident occur? *(Tick (✓) all options that applies)*

1. At a junction 2. Round about 3. At a bend
4. On a tarred road 5. On an untraded road 6. Others. Specify _____

30. Which of the following best describes the weather at the time of the accident?

1. Fine 2. Overcast/Cloudy 3. Drizzle/light rain 4. Heavy rain
5. I don't know 6. Others specify _____

31. Which of the following best describes the light condition at the time of the accident?

1. Sunny 2. Bright sunlight 3. Dust 5. Night time

6. Other please specify_____

32. How did the accident happened? (*Tick (✓) all that applies*)

1 Answering phone call 2. Psychological stress 3. Fatigue 4.Overload 5. Hit fromthe back by another vehicle/motorcycle 6.Others please specify_____

33. What type of injuries did you sustained (*Tick (✓) all that applies*)

1 Bruises/abrasion 2 Fracture 3 Dislocation

4. Laceration 5.Burns 6 Others please specify _____

34. What parts of the body was affected? 1. Head 2. Neck 3. Back 4. Waist

5. Upper limbs 6. Lower limbs

35. Do you use any protective kits during the accident 1. Yes 2. No

36. Do you wear crash helmet during the accident? 1. Yes 2. No

37. What other protective kits did you wear when the accident occurred?(*About your last accident. Tick (✓) all that applies*) 1. Protective Jacket 2. Protective trousers

3. Eyes goggle 4 .Protective boot 5. Hand glove 6. None of the above

38. How many of you were on the motorbike when the accident occurred? _____

39. Did you go to the hospital because of the injury?

1. Yes 2. No (*If "No", go to question 44*)

40. Were you hospitalized? 1. Yes 2. No

41. Did you have to stay in thehospital for one night or more because of the injury?

1. Yes 2.No

42. How much did you pay for the treatment? ₦_____

43. Where did you go? 1. Hospital 2. Patent Medicine Vendors 3. Traditional Birth Specialists 4. Self medication

SECTION C: CAUSES OF MOTORCYCLE ACCIDENT

44. Which of the following do you considered to be causes of accidents among motorcyclist?

S/N	Humnn errors	YES (1)	NO (2)
A	Slippery roads		
B	Over- speeding		
C	Collision with another motorcycle		
D	Ride when drunk		
E	Over loading		
F	Using Cell Phone while riding		
G	Not obeying road sign		
H	Wrong Overtaking		
I	Under age motorcyclist		
J	Fatigue		
	Technical faults	**YES**	**NO**
A	Busted tire		
B	Riding motorcycle that is mechanically faulty		
C	Brake failure		
D	Stationary object		
	Natural Causes	**YES**	**NO**
A	Poor weather		
B	Sun too heavy but not wearing glasses		
C	Heavy rainfall		

SECTIOND: KNOWLEDGE OF COMMERCIAL MOTORCYCLIST ON USE SAFETY KITS

Please indicate whether Yes or No to the following statement

S/N	STATEMENT	YES (1)	NO (2)
42	Helmet can protect one's brain from injury in case of an accident		
43	Helmet protects one's face in case of an accident		
44	Eye Goggle protect the eyes from dangerous dust and insects		
45	Hand gloves and can protect the hand and fingers in case of accident		
46	Foot wear or boots protect one's leg in case of accident		
47	Nothing is wrong in wearing slippers while riding		
48	Wearing of fluorescent jacket for riding will make other road users to see the commercial motorcyclist and reduce the cases of accident		

The following question asks about motorcyclists' *behaviour towards compliance with road Safety kits*

49. When you are riding your motorcycle with your passenger(s)?

S/N	STATEMENT	YES (1)	NO (2)
A	Do you wear crash helmet?		
B	Do you insist your passenger wears crash helmet?		
C	Do you wear riding boot?		
D	Do you obey maximum speed limit of 50km/hr or ride above the speed limit?		
E	Do you carry more than one passenger at a time?		
F	Do you obey traffic signs?		
G	Do you receive or make calls while riding?		

SECTION E: ATTITUDE OF COMMERCIAL MOTORCYCLIST TOWARD SAFETY KITS

Motorcyclist have different *attitude towards safety kits.* Please read the following and tell me if *you Agree, Disagree, or Undecided*

S/N	STATEMENTS	AGREE (1)	DISAGEE (2)	UNDECIDED (3)
50	Crash helmet is a useful safety device for motorcycle users.			
51	Use of crash helmet cannot prevent injury?			
52	Crash helmet's law is only enforced when police and other law enforcement agents want to collect money from riders			
53	Over speeding is right as long as you control the motorcycle			
54	Overloading of persons/goods is not a problem if it does not disturbs the drive.			
55	Motorcyclists can still ride irrespective of their ages.			

Thanks and God bless

APPENDIX IV

FOCUS GROUP DISCUSSION GUIDE FOR COMMERCIALMOTORCYCLIST

INTRODUCTION

I am ——————————————and my colleagues are……We are from the Department of Health promotion and Education Faculty of Public Health College of Medicine, University of Ibadan. The discussion focuses on the knowledge of motorcycle accidents and utilisation of safety kits among commercial motorcyclist in Ido Local Government Area Oyo State. This discussion is part of the research project and its outcome will be useful in future planning for ways of reducing death and injuries sustained when accident occurred. We have specially invited you to come and share your views with us because of your wealth of knowledge. We crave your indulgence to use a tape recorder because there is a limit to what the brain can remember and we do not want to forget the useful experiences we are here to share. We assure you that the information you give will not be used in anyway against you or any one. All information will be kept with utmost confidentiality.

Please do you agree to participate ? Yes No

	MAIN QUESTION	FOLLOW UP QUESTIONS
1	How common are motorcycle business here?	4 Probe for frequent of occurrences. -full time - part-time
2	5 What are the most common road accident in this area? b) How common are motorcycle accidentamong commercial motorcyclist?	6 Probe for frequent occurrences. -Daily -Weekly -Monthly -Occasional
3	What are the causes of this accident?	7 Probe for -Not obeying the traffic rules -Destiny

		-God of Iron -Over loading -Over Speeding -Reckless driving etc
4	What types of injuries sustained mostly by the riders?	Probe for -Fracture -Bruises - Abrasion and Cut/tear -Dislocation - Wound in the head
5	If injury occurred, where do they seek care?	Probe for -Self treatment -Visit PMV -Visit Government hospital -Visit private hospital -Visit traditional healers
6	How can the riders prevent this accident?	Probe for -Use of helmet -Eye goggle -Riding boot -Hand gloves
7	a) What rules and regulation government the operation of motorcycle riders? b) Are commercial motorcyclist satisfied with the government rules and regulations?	Probe for -satisfaction of the rules -Road signs -Licence -Helmet use -Helmet cost
	c) Who enforce the regulation?	Government? Association of commercial motorcyclist?
8	To what extent did commercial motorcyclist abide by rules and regulation?	Probe for the type of rules they comply with? -Use of helmet

		-Obtaining licence -Abide by the road sings
9	What dangers associated with commercial motorcyclist on the road?	Probe for -Types of danger
10	Is there any policy for motorcyclist?	Probe for those policies -What does the policy says?

We have come to the end of this discussion and we will like to thank everyone for active participation. Thank you.

ASOMOKEFA

IWE ITOSONA AWON AKOJO TI NSE IJIRORO LORI AWON AFOJUSUN NIPA IMO AWON OLOKADA NIPA IJAMBA OKADA ATI LILO AWON OHUN IDAABOBO LARIN AWON OLOKADA NI IJOBA IBILE IDO TI IPINLE OYO

Emi ni....., awon elegbe mi ti a jo wa nibi ni.....
..... A wa lati eka eto eko idagba soke ati idanileko nipa ilera ara ilu ti o wa labe Eka ti oun rise eto ilera gbo gbo ilu ti ile-eko eto ilera ni ile eko giga ni Ifasiti ti Ibadan. Ohun ti a fe soro le lori ni "*Awon afojusun nipa imo nipa awon olokada nipa ijamba okada ati awon ohun idabobo larin awon olokada ni ijoba ibile ido, ti ipinle Oyo.* Iforowero yi je okan lara awon ise iwadi ijinle ti a nse, yio si wulo ni ajo iwaju lati se awon ipinu nipa awon ona ti a o ma gba lati fin opin si itu ijamba ti o le fe waye ni ojo iwaju. A nfi lowolowo royin lati wa so ohun ti e nio fun wa nitori a mo wipe eti ni opolopo imi. A nfe gba aayc lowo yin lati lo ero igbohun sile yi nitori wipe die kiun ni ale fi owo ko ninu awon ohun ti ebanso, akosi fe gbayi lakoko pupo. A nfi da yin loju wipe gbogbo ohun ti eba so fun wa ko si emi ti yio lo won lati fi se yin ni jamba. A si fi nda yin loju wipe ghogbo ohun ti eba so fun wa ni a o fi se asiri nla. Nje e setan lati ba wa dasi? 1. Beeni 2. Beeko

	GBANKOGBI IBEERE	AWON IBEERE AMUGBA-LEGBE
1	Bawo ni ise okada wiwa se wopo ni iagbegbe yi to?	Wadi nipa bi awon olokada se po to ni aghegbe na, wadi nipa awon ti won fi ise na se ise ojo won ati awon ti won se lekankan.
2	Bawo ni awon ijamba okada lann awon olokada se wopo si ni agbegbe na?	Wadi bi ijamba na ti po to. Ojoojumo. Osoose.Osuusu. Ekankan
3	Kini awon ohun ti on se okunfa awon ijamba woyin?	Wadi awon nkan woyin. Ai pa ofin ojupopo mo, Ayanmo. Orisa Ogun. Ere-asa-pa-oju-de, Wiwa oko bi o se wunmi
4	Iru awon ifarapa wo ni e ma nsaba ni ju?	Wadi awon nkan wonyi: -Kikan legun - Fifara bo lanayana - Egbo nla - Egungun fife - Fifi Ori sese
5	Ti ifarapa ba sele leyin ijamba, niko ni	Wadi awon nkan wonyi

	c ti ma nwa itoju?	- Titoju ara eni lai lo si ile iwosan - Lilo si odo awon ti onto oogun - Lilo si ile-iwosan ijoba - Lilo si ile-iwosan aladani - Lilo si odo awon onisegun ibile
6	Bawo ni awon olokada se le dena awon ijamba wonyi?	Wadi awon nkan wonyi: -Lilo akoto -Bibe awon agbe-olimo
7	8 Kini awon ofin ati liana ti awon olokada ni ijoba ibile yi ye ki won ma tele? 9 Nje awon olokada fi ara mo awon ofin ati ilana ti ijoba la kale? 10 Awon won ni won ma ngbe ofin wonyi ro?	Wadi awon nkan wonyi: -Iforamo awon ofin -Aworan ojupopo -Iwe irinna okada -Lilo akoto -Iye owo akoto c) - Ijoba? - Awon omo egbe olokada?
8	Bawo ni awon omo egbe olokada se ma ntele ofin ati liana yi to?	Wadi awon nkan wonyi: - Lilo akoto - Gbigba iwe irinna Okada - Ti tele awon aworan ojupopo
9	Awon ewu wo ni o wa fun awon olokade ni ojupopo?	Wadi awon nkan wonyi: -Iru awon ewu
10	Nje eto Kankan wa fun awon olokada?	Wadi awon nkan wonyi: -Kini awon eto na -Kini awon ohun ti awon eto na so?

A ti de ipari awon ibere wa, a de nfi as ko yi dupe lowo gbogbo awa ti akopa ninu iforo-wani-lenu-wo yi.

Ese pupo.

ASAMO KEJE

IWON IBERE NIPA AFOJUSUN NIPA IMO AWON OLOKADA NIPA LAMIBA OKADA ATI LILO AWON OHUN IDAABOBO LARIN AWON OLOKADA NI IJOBAIBILE IDO TI IPINLE OYO

Eyin Akopan ninu ibeere mi Owon,

Oruko mi ni Yusuf. Abdulkabir Toriola akeko oni pele keji lati eka ti nmojuto ilera ara ilu ati imo nipa ilera, ti o wa ni ipa ilera ara ilu ni ti lle eko giga ti fasiti ti Ibadan. Mo nse iwadi ti o da lori "***Awon afojusun nipa imo awon olokada nipa lamiba okada ati awon ohun idabobo larin awon olokada ni ijoba ibile ido, ti ipinle Oyo.***" Awon ohun ti e ba so fun wa ni ibi yio je ohun asiri ti eti ikeka ko ni gbo rara, yoi si wolu fun ise imo ijinle ni ile-iwe nikan soso ni. A o si tun lo fun ipinnu nipa bi ati le dena awon ewu ti o ro mo okada wiwa lori popo ati ohun idaabobo larin awon olokada ni agbegbe Ijoba Ibile Ido. Mo nfi towotowo toro aye lowo yin ki nto tesiwaju pelu awon ibeere olokan-ojo-kan ti mo fe bi yin nipa iwadi ijile yi. ma si fe ki e ba mi dahun awon ibeere na pelu bi o ba se ye yin to. Mo fe ki e mo wipe, gbogbo ohun ti e ba so ni a o ni je ki eti miran ki o gbo, ko si ni si eni ti yio lo awon nkan ti e ba so lati tako eyin tabi awon ara ile yin.

Nje e setan lati ba wa dasi? 1. Beeni 2. Beeko

Espupo fun ifowosowopo yin.

Fun ilo awon onise nikan.....

Nomba oake.....

Oruko agbegbe.....

Osu.....

ABALA A: AWON OHUN TI O JE MO OLUKOPA NINU IWADI

1 Ojo ori olukopa .....

2 N je e ti l'aya bi? 1.N ko tii l'aya 2. Mo n ba afesona mi gbe po 3. Mo ti l'aya 4. emi ati iyawo mi n gbe lotooto 5. Emi ati iyawo mi ti ko ara wa s'ile 6. Iyawo nii ti se alaisi

3 Iru esin wo le n se : 1.igbagbo 2. Musulumi 3. Ihile 4. Awon miiran

4 Eya orile ede yi wo le je? : 1.Yoruba 2.Hausa 3.Ibo 4. Eya miimn

5 Iwe melo ni e ka : 1.N ko ka iwe rara 2. N ko pari iwe meta 3. Mo pari iwe mefa 4. N ko pari iwe mewa 5. Mo pari iwe mewa 6. Mo lo ile iwe giga ti eko awon oluko 7. Mo lo ile-iwe giga ti imo ero 8. Mo lo ile iwe giga julo ti yunifasiti awon miiran.....

6 Iru okada wo ni e n wa ? 1.Yamaha 2.Suzuki 3. Honda 4. Bajaj 5 e jowo e daruko awon miiran.....

7 O to igbawo ti e ti n wa okada ?.....

8 N je e gba idanileko wiwa okada ki e to maa fi se ise ero kiko? 1 Beeni 2 Beeko *(Bi o ba je beeko, e fo ta si ibeere kejila)*

9 Tani eni ti o ko o yin ni idanileko naa ?.....

10 Baw o ni idanileko naa tipe to? .....

11 N je e kopa titi de ipari idanileko naa ? 1 Beeni 2 Beeko

12 N je e maa n mu oti lile ? 1 Beeni 2 Beeko

13 Bi o ba je beeni, bi igba melo lojumo le maa n mu oti yi ?.....

14 N je e maa n mu siga? 1 Beeni 2 Beeko

15 Bi o ba je beeni, bi igba melo lojumo le maa n mu siga yi ?.....

16 N je e ni iwe ase-awako ti o peye fun okada yi ? 1 Beeni, o peye 2 Beeni, sugbon ko peye 3 Beeko, n ko ni iwe rara *(Bi o ba je beeko, e fo ta si ibeere igun)*

17 Bi idahun yin si ibeere kerin-dinlogun ba je beeni, n je e se idanwo Kankan ki e to gba iwe ase- awako yi? 1 Beeni 2 Beeko

18 Bi igba melo ni e maa n mu iwe ase-awako yii dani bi e ba n li okada gbe ero? 1 Ni gbogbo igba 2 Ieekookan 3 N ko n gbe rin rara

19 O ti to odun melo ti e ti gba iwe ase-awako fun okada yi ?.....

ABALA A: AWON OHUN TI O JE MO OLUKOPA NINU IWADI

1 Ojo ori olukopa .....

2 N je e ti l'aya bi? 1.N ko ti l'aya 2. Mo n ba afesona mi gbe ro 3. Mo ti l'aya 4. emi ati iyawo mi n gbe lotooto 5. Emi ati iyawo mi ti ko ara wa s'ile 6. Iyawo mi ti se alaisi

3 Iru esin wo le n se : 1.Igbagbo 2. Musulumi 3. Ibile 4. Awon miiran

4 Eya onile ede yi wo le je? : 1.Yoruba 2 Hausa 3.Ibo 4. Eya miimn

5 Iwe melo ni e ka : 1.N ko ka iwe rara 2. N ko pari iwe mefa 3. Mo pari iwe mefa 4. N ko pari iwe mewa 5. Mo pari iwe mewa 6. Mo lo ile iwe giga ti eko awon oluko 7. Mo lo ile-iwe giga ti imo ero 8. Mo lo ile iwe giga julo ti yunifasiti awon miiran.....

6 Iru okada wo ni e n wa ? 1.Yamaha 2.Suzuki 3. Honda 4. Bajaj 5 e jowo e daruko awon miiran.....

7 O lo igbawo ti e ti n wa okada ?.....

8 N je e gba idanileko wiwa okada ki e to maa ti se ise ero kiko? 1 Beeni 2 Beeko *(Bi o ba je beeko, e fo lo si iheere kejilo)*

9 Tani eni ti o ko o yin ni idanilcko naa ?.....

10 Bawo ni idanilcko naa upe to? .....

11 N je e kopa titi de ipari idanilcko naa ? 1 Beeni 2 Beeko

12 N je e maa n mu oti lile ? 1 Beeni 2 Beeko

13 Bi o ba je beeni, bi igba melo lojumo le maa n mu oti yi ?.....

14 N je e maa n mu siga? 1 Beeni 2 Beeko

15 Bi o ba je beeni, bi igba melo lojumo le maa n mu siga yi ?.....

16 N je e ni iwe ase-awako ti o peye fun okada yi ? 1 Beeni, o peye 2 Beeni, sugbon ko peye 3 Beeko, n ko ni iwe rara *(Bi o ba je beeko, e fo lo si iheere egun)*

17 Bi idahun yin si iheere kerindinlogun ba je beeni, n je e se idanwo Kankan ki e to gba iwe ase- awako yii? 1 Beeni 2 Beeko

18 Bi igba melo ni e maa n mu iwe ase-awako yi dani bi e ba n fi okada gbe ero? 1 Ni igbogbo igba 2 Ieekookan 3 N ko n gbe nn rara

19 O ti to odun melo ti e ti gba iwe ase-awako fun okada yi ?.....

ABALA B: AWON IBEERE TI O JEMO BI JAMIBA OKADA SE WOPOSI NI AGBEGBE YIN

20 N je isc ero kiko nikan ni e n fi okada yi se? 1 Beeni 2 Beeko

21 N je e tun maa n lo okada yi fun irinse ara yin ? 1Beeni 2 Beeko

22 N je tun maa n wa okada yi fun igbadun ara yin ? 1 Beeni 2 Beeko

23 Nje iwon bi odun kan seyin . . n je e ti ni jamiba okada bi?

24 Ni iwon bi osu mefa seyin, n je e ti ni jamba okada bi? 1 Beeni 2 Beeko

(Bi o ba je beeko, e fo lo si ibeere erinlengaji)

25 Bi idahun yin ba je beeni, bi igba melo ni e ti ni jamba okada ti .....

26 Ojo wo ninu ose ni jamba naa sele *(E reka si gbogbo eyi ti o ba je beeni)* 1.Aarin ose 2. Opin ose 3. Aarin ati opin ose 4. N ko ranti

27. Asiko wo ni ijamba naa sele ninu ojo naa ? 1. Owuro 2. Osan 3. Ale 4 Oru

28. Iru ijamba wo gangan lo sele si yin ?

ONKA	IRU IJAMBA	BEENI (1)	BEEKO (2)
A	Okada nikan soso		
B	Okada ati okada miiran		
D	Okada ati moto		
E	Okada ati eni ti n fic se rin		
E	Okada ati eranko		
F	Iforikanri okada nigba ti o n le sare koja awako miiran		

29. Nibo ni pato ni ijamba naa ti sele ? 1. Ni ikorita meta 2. Ni ikorita merin 3. Ni iyara 4. Ni iru oloda 5. Ni titi eleruku 6. Awon ibi miira .....

30. Ewo ninu awon apejuwe wonyi ni o toka si bi oju ojo se ri ni ojo jamba naa ? 1. Oju ojo dara 2. Oju ojo su bi ojo 3. Ojo n ro were-were 4. Ojo n ro gan-an 5 kuru-kuru bo oju ojo mole 6. N ko mo 7. Awon apejuwe miiran.....

31 Bawo ni apejuwe imole oju ojo ni asiko jamba yi ? 1. Oorun nran die 2. Orun n ran pupo 3.Eruku po ni asiko naa 4. Ale ti le ni igba naa 5 awon apejuwe miiran

32 Bawo ni jamba naa ti sele ? ( ) 1. Mo n gba ipe lori ero ilanisoro 2. Oko mi ko bale ni asiko naa 3. O re mi pupo 4. Eru ako ju 5 Okada miran gba mi lati eyin 6. Awon idi miiran.....

33. Ni iwon odun kan seyin, n je e ti ni jamba okada ? 1 Beeni 2 Beeko(*Bi o ba je beeko, e fo lo si ibeere ikarun din laadota)*

34. Nibo ni pato lara yin le se ese? 1. Ori 2. Orun 3. Eyin 4. Ibadi 5. Apa 6. Ese 7. Oju 8. Awon ibomiran.....

35. Nje elo olun idabobo kak ka ni asiko jamba yi? 1. Beeni 2. Beeko

36. Nje elo koto ori ni siko jambayi? 1. Beeni 2. Beeko

37. Iru olun idaabobo wo le wo ni asiko jamba yi ? 1. Ewu idaabobo 2. Sokoto idaabobo 3. Idaabobo oju 4. Bata idaabobo 5. Ibowo idaabobo 6. N ko wo idaabobo Kankan

38. Eyin melo ni e wa lori okada naa ni asiko ti jamba yi sele ?.....

39. N je e gbe ifurapa naa lo si ile iwosan bi ? 1. Beeni 2. Beeko *(Bi o ba je beeko, e fo lo si ibeere kokanlelogoji)*

40. N je won da yin duro si ile iwosan ni igba naa ? 1. Beeni 2. Beeko

41. N je e ni lati sun ojo kan ni ile iwosan nitori jamba okada yi ? 1. Beeni 2. Beeko

42. Eelo ni e san fun itoju ara yin? .....

43. Nibo ni e lo fun itoju ara yin? 1. Ile-iwosan 2. Odo oluta oogun 3. Ile-igbebi 4. Idara eni toju

ABALA C: OKUNFA JAMBA OKADA

44. Ewo ninu awon wonyi lo maa n se okunfa jamba oko okada? (E ni anfaani lati mu ju idahun kan lo)

ONK	Afowofa	BEENI(1)	BEEKO (2)
A			
A	Ona ti ko dara / Ona ti o n yo		
B	Ere a sa Pajudc		
C	Fila ori so oko okada miran		
D	Wiwa okada leyin oti ainupara		
E	Eru mimidiran		
F	Lilo ero ipe lori okada		
G	Sise aigboran si ofin liana iwako		
H	Yiya okada miran koja ni liana ti ko ba ofin mu		
I	Wiwa okada fun omodc		
J	Irewesi		
	Ipe iwe okada		

A	Bi tayo ba so
B	Bi okada ba baje
C	Bi bircckl ko ba mu
D	Bi ohun idaduro kan ba wa ni oju titi
	Aniuwa olorun
A	Aidara oju ojo
B	Oorun pupo ju/ki kuna lati lo jigi oju
C	Ojo pupo ju

ABALA D: IMO AWON OLOKADA LORI BI A TI N DEKUN JAMBA O

E jowo, e so ni pato bi beeni tabi beeko si awon igbekale wonyi lori wiwa okada

ONKA	IGBEKALE ORO	BI (1
45	Koto olokada le se idabobo fun opolo bi jamba okada ba sele.	
46	Koto olokada ma n se idabobo fun oju bi jamba ba sele	
47	Jigi oju ma n se idabobo fun oju lowo eruku ati kokoro	
48	Ibowo maa n se idabobo fun owo ati awon ika-owo bi jamba okada ba sele	
49	Bata tabi ibose ma n se idabobo fun ese bi jamba ba sele	
50	Wiwo salubata lati wa okada ko buru	
51	Wiwo aso olokada ti o tan yanyan yoo je ki awon ti o kun ni titi tete ri, yoo si din jamba okada kun loju opopona wu.	

Awon ibeere wonyi da lori ihuwasi ou sise deede awon olokada si eto ilana a loju popo

A	Bi taya ba fo
B	Bi okada ba baje
C	Bi birecki ko ba mu
D	Bi ohun idaduro kan ba wa ni oju titi
	Amuwa olorun
A	Aidara oju ojo
B	Oorun pupo ju/ki kuna lati lo jigi oju
C	Ojo pupo ju

ABALA D: IMO AWON OLOKADA LORI BI A TI N DEKUN JAMBA OKADA.

E jowo, e so ni pato bi beeni tabi beeko si awon igbekale wonyi lori wiwa okada

ONKA	IGBEKALE ORO	BEENI (1)	BEEKO (2)
45	Koto olokada le se idabobo fun opolo bi jamba okada ba sele		
46	Koto olokada ma n se idabobo fun oju bi jamba ba sele		
47	Jigi oju ma n se idabobo fun oju lowo eniku ati kokoro		
48	Ibowo maa n se idabobo fun owo ati awon ika-owo bi jamba okada ba sele		
49	Bata tabi ibose ma n se idabobo fun ese bi jamba ba sele		
50	Wiwo saaju bata lati wa okada ko buru		
51	Wiwo aso olokada ti o fun yanyan yoo je ki awon ti o kun ni titi teie ni, yoo si din jamba okada kun loju opopona wa.		

Awon ibeere wonyi da lori ihuwasi ati sise deede awon olokada si eto ilana ati ofin iwako loju popo

52. Bi e ba fi okada yin gbe ero,

ONKA	IGBEKALE ORO	BEENI (1)	BEEKO (2)
A	N je e maa n de koto olokada bi?		
B	N je e maa nfi aake kori pe ki awon ero yin de koto olokada bi?		
C	N je e maa n wo bata iwako olokada bi?		
D	N je e maa n se igboran si ofin ere sisa loju popo, wipe ki e maa sa ere ju aadota kilomita ni aarin w akati kan?		
E	N je e maa n gbe ju ero kan lo bi?		
F	N je e maa n se igbonran si awon ilana iwako loju popo ona?		
G	N je e maa n se ipe tabi gba ipe bi e ba n wa okada bi?		

ABALA E: IHUWASI ATI IKOBIARA SI AWON OHUN IDABOBO LARIN AWON OLOKADA

Awon olokada maa n ni onsirisi ihuwasi ati ikobiara si awon ohun idabobo lann awon olokada. E jowo e ka awon liana iwako wonyi. Ki o si so ni pato bi iha ti e ko si inu ilana boya e gbaa wole, tabi becko, tabi e ko le so si.

ONKA	IGBEKALE ORO	MO GBA BEE (1)	N KO GBA BEE (2)	N KO LE SO SI (3)
53	Koto olokada je ohuo idabobo ti o wulo pupo fun olokada			
54	Lilo koto olokada ko le dena ifarapa ni jamba okada?			
55	Awon olopa ati agbofin ro ti o kun maa n se koto didc ni kan pa fun awon olokada ni asiko ti won ba fe gba nba loju popo?			
56	Ere a sa pajudc ko lewu ni iwon igba ti awako ba ti kapa okada re			
57	Adidilan eru tabi ero ko lewu ni iwon igba ti ko ba ti di wiwa okada lowo.			
58	Ojo ori ko ni ohun kan se pelu okada wiwa fun pupo. Ki olerun ki o bukun yin			

TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No. .....

All communications should be addressed to

The Honourable Commissioner quoting

Our Ref. No. AD 13/ 479/ 531

April, 2015

The Principal Investigator,
Department of Health Promotion and Education.
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan

Attention: Yusuf Abdullahin

Ethical Approval for the Implementation of your Research Proposal in Oyo State

This acknowledges the receipt of the corrected version of your Research Proposal titled "Use and Knowledge of Accident Risk Prevention among Commercial Motorcyclists in Ido Local Government Area Oyo State, Implication for Injury Prevention."

2. The committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey to you the approval of committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of the findings as this will help in policy making in the health sector.

4. Wishing you all the best.

Signature & Date

Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee

TELEGRAMS.....

TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Our Ref. No. .....

Communications should be addressed to
the Honourable Commissioner quoting
Our Ref. No. AD 13/ 479/ 531

April, 2015

The Principal Investigator,
Department of Health Promotion and Education.
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan.

Attention: Yusuf Abdulkabir

Dear Sir,

Approval for the Implementation of your Research Proposal in Oyo State

This acknowledges the receipt of the corrected version of your Research Proposal titled: "Case and Knowledge of Accident Risk Prevention among Commercial Motorcyclists in Ido Local Government Area Oyo State, Implication for Injury Prevention."

1. The committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey to you the approval of committee for the implementation of the Research Proposal in Oyo State, Nigeria.

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Signature & Date

Director, Planning, Research & Statistics
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