UNIVERSITY OF GHANA, LEGON

THE PERCEPTION OF RISK AND ITS IMPLICATIONS ON THE OPERATIONS OF MOTOR TAXI (OKADA) IN THE GREATER ACCRA REGION.

BY

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DECLARATION

I, **ANTHONY NANA APPIAH,** do hereby declare that apart from the references to other people's work which have been duly acknowledged, this thesis is the result of my own research and it has neither in part nor in whole been presented for another degree.

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Supervisor's Declaration

I hereby declare that the preparation and presentation of this dissertation was supervised in accordance with the guidelines on the dissertation supervision laid down by the University of Ghana.

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Dr. Ernest Agyemang

(Co-Supervisor)

DEDICATION

This work is dedicated to **PROF. MARTIN OTENG-ABABIO** of the University of Ghana, Department of Geography and Resource Development for his love, care, and inspiration to my life. I am forever grateful to you.

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ABSTRACT

Motorcyclists' injuries and fatalities are a major recent public health concern in many developing countries, including Ghana. In Ghana, motorcycle for commercial purposes (known as Okada) is a recent development but one of the fastest transportation mode especially in the urban areas. This study focused on the perception of risk and its implications on the operations of motor taxi (Okada) in the Greater Accra region. Specifically, the study was designed to evaluate the risk perceptions, knowledge, beliefs, attitudes, and practice of some commercial motorcyclists regarding the use of crash helmet and other safety equipment.

The questionnaires targeted 200 riders from various commercial motorcycle turfs (stations) from two different study areas (Accra Metropolis and Ashaiman Municipality). The researcher obtained verbal consent from commercial motorcyclists (group leaders) and after that administered structured questionnaires concerning motorcyclists' behaviour in their operations. There was also a checklist of safety gears, interviews with stakeholders and focus group discussion with some riders (Station Master).

Chi-square test of association was used to determine the statistical significance of relationships between independent variables such as demographic characteristics and the dependent variable that is, the risk perception of Okada operators.

At the end of the study, riders percieved that Okada operation is dangerous but had a high-risk perception of safety. As a result, the use of protective gears like helmet, boots, and jackets was high among riders. The study recommends that Okada should be legalised, and there should be an joint efforts of Government and other relevant stakeholders to target riders and pillion riders for educational programs to change unfavourable attitudes, practics and beliefs toward road safety regulations and the use of safety gears.

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LIST OF ACRONYMS

BRT	Bus Rapid Transit
CBD	Central Business District
DFR	Department of Feeder Roads
DUR	Department of Urban Roads
DVLA	Driver and Vehicle Licensing Authority
GHA	Ghana Highway Authority
GSS	Ghana Statistical Service
HBM	Health Belief Model
LI	Legislative Instrument
MMT	Metro Mass Transport Limited
MTTD	Motor Traffic and Transport Department
NRSC	National Road Safety Commission
PPP	Personal Protective Equipment
PRO	Public Relation Officer
RP	Risk Perception
RSA	Road Safety Ambassador
RTA	Road Traffic Accident

RSE	Road Safety Education
RRCGB	Reported Road Causalities Great Britain
TRA	Theory for Reasoning
SPSS	Statistical Package for Social Sciences
STC	State Transport Cooperation
WHO	World Health Organisation

CHAPTER ONE

GENERAL INTRODUCTION TO THE STUDY

1.1 Background to the study

Motorcycle used for taxis are essential and common emerging means of commercial transport in developing countries in Africa and Asia while in Europe, America and Australia motor riding are for recreational purposes (Simpson et al., 2014). For instance, approximately more than 100,000 people use and work as motorcycle taxi riders in Guantzou, South China (Wu et al., 2016). Oginni et al., (2007) described a motorcycle as the most hazardous form of a motorised transportation system. Riders and pillion riders are particularly defenceless in times of road traffic crashes due to the exposed nature and design of motorcycles. About 1 million people are killed yearly by road traffic accidents involving motorcycles (Peden et al., 2004).

The high risk coupled with the relatively high number of casualties ordinarily should make clients of motorcycles perceive the vehicle as very dangerous. Risk perception is explained as the ability to read and anticipate an unforeseen or impending event (McKenna et al., 2006). The perception of risk among riders has been examined by the attitude, behaviour, practice, knowledge, and belief through mortality and morbidity rate of the outcome of motorcycling accidents. According to Wilde (2006), road users continuously control the quantity of risk of a perceived accident. However, riders' risks for several reasons but mainly to create some convenience for themselves at a material moment, but it becomes terrible practice/idea resulting in a road traffic accident (Wilde, 2006).

In a survey of 50 European countries by Vanluar and Yannis (2006), 23 countries clearly showed that perceived risk affects the rider's attitude, behaviours, and usual practices. Erhardt et al., (2015) described how motorcycle collision caused the death of approximately 4,668 people in the United

States. In the same article, the emphasis is laid on how the beliefs and practices of some riders, such as the refusal to wear a helmet have increased the number of deaths. For example, some motorists believe that the use of crash helmet cause more injuries to the neck in the event of an accident and also prevent the rider from clear vision.

Another study discovered that riders engage in taking alcohol, hard drugs, and medication to keep them awake to ride for an extended period (Bekibele et al., 2007). In other parts of the world like Australia and New Zealand, regardless of high mortality rate as a result of motor crashes, riding remains a popular luxurious recreational activity (a commuting choice and commuting necessity), therefore, the risk involved in riding is of less concern to riders in so far as satisfaction is attained (Simpson et al., 2014). Notwithstanding other factors, the perceived risk among riders in America and Europe are also based on the driver-road-vehicle systems (Eboli et al., 2016). Riders' perceive road accidents with the state of the rider, nature of the road, and the condition of the vehicle.

In Africa, a motorcycle taxi is a licensed form of transport in some countries like South Africa, Kenya, Nigeria, Togo, and Benin (Asare-Donkoh, 2017). As a result of legalising the use of motor-taxi for commercial purpose, road traffic mortality in Africa is twice higher than that of Europe (28.3 per 100,000 population in Africa while compared with 11.0 in Europe) (Peden et al., 2004; WHO, 2010). The risk perception with most riders in Africa has led to high road traffic accidents with most motorists associating the causes of this fatality to cultural and belief settings (superstition) (Legarde et al., 2007). African culture has deep mythical thoughts, and this has a strong influence on the minds of most riders to the extent of committing minor errors and possibly leading to accidents as noted by Kouabenan (1998) and Du Bois and Marable (2015). Peltzer (2002) reaffirms that there is a strong relationship between culture and road accidents in a study conducted in South Africa.

Peltzer (2003) further mentioned a range of human errors like alcoholism, speeding, bad nature of roads and poor standard of riders as the leading causes of road accidents yet superstition cannot be neglected. Some riders, for example, do believe that witchcraft is a cause of road accidents and as such, motorists tend to 'protect' themselves spiritually rather than pay heed to safety gears and procedure (Adinkrah, 2004). Oginni (2007) reaffirm why some riders and pillion riders avoid helmet, suggesting that, the wearing of same crash helmet used by other persons is a sign of inviting misfortunes to one's life.

Similarly, a study conducted in Nigeria by Ngim and Udosen (2007), shows that some commercial motor riders do take alcohol and hard drugs in early or late hours of the day and during the raining season with the idea of keeping warm in the midst of the cold weather. In Nigeria, some riders refuse to provide helmets and other protective gears for pillion riders with the excuse of these pillions riding on short distances (Oginni et al., 2007). Additionally, some riders claim to protect themselves with the use of magical powers (juju) with the perception of being protected from any accident, boosting the confidence of riders in taking unnecessary risk. These magical objects are in the form of amulets, rings, and talisman (Ngim and Udosen, 2007).

In Ghana, motorcycles play an essential role in the transportation system, particularly in Northern regions where they are the most popular mode of transport for both humans and goods (Akaateba et al., 2014**).** In the southern part of Ghana, the commercialisation of motorcycle transport is commonly known as 'OKADA'. This form of transport became famous as a result of the low cost of bikes, deficiencies in the current road transport system, and their attendant frustration in the face of unemployed urban youth (Oteng-Ababio and Agyemang, 2012; Akaateba et al., 2014). With the introduction of Okada in the 1990's, Okada transport has contributed to the increase in road accidents and has caused a substantial number of injuries, deaths, and loss of properties

(Victor Tandoh, personal communication, 18th April, 2018; Afukaar and Ofosu-Amaah, 2003). According to the records of the Ghana Police Service's Motor Traffic and Transport Department in 2010, 12,981 road crashes resulted in 11,147 injuries, and 1,760 deaths occurred (National Road Safety Commission, 2013) while in 2011 the figure increased to 13,272 with 2,330 deaths (Ghana Police Service, 2012).

The risky behaviour of motorcycle taxi riders is linked to their low level of education and lack of formal training on road safety as highlighted by Akaateba and Amoah-Gyamfi (2013). The proliferation of Okada has naturally increased the likelihood of accidents involving a motorcycle (Afukaar and Ofosu-Amaah, 2003; Kudebong et al., 2011). Interestingly, in the event of a motorcycle accident, riders are the category of people least affected by injuries, pedestrians suffer the most followed by pillion riders. According to Abane (1993) and Ameratunga et al., (2006), this is because of how pedestrians perceive risk and their lackadaisical attitude towards road safety.

The increase in accidents involving motorcycles coupled with the vulnerability of Okada patrons calls for special attention to be paid to the adherence to safety guidelines by riders and pillion riders. However, the exact rate of increase in motorcycles and the business of Okada cannot be stated as it happens on the blind side of state institutions. They are frequently seen riding in almost every corner of the city (Oteng-Ababio and Agyemang, 2012). It is, therefore, imperative to examine the Okada operations with emphasis on risk perception (attitude, knowledge, and behaviours) and its relationship on safety adherence. The question, therefore is; should the city authorities outlaw or oppose the implementation of Okada transport services given the current reality considering the massive traffic congestion situation in the city? This study is expected to provide answers to this question.

1.2 Problem Statement

The primary mode of transport for cities are changing (Vasconcellos, 2014). The change is different between developed and developing countries. The trend of urban transport in developed countries leans toward collective high occupancy vehicles (Rapid Bus Transport System) whereas developing countries are experiencing an increase in the individual modes of transportation (Roger et al., 2016). The rapid population growth rate, coupled with the urban sprawl, has created a deficit in the transport system in developing countries due to limited financial and technical capacities (Suzuki et al., 2013). Consequently, one of the challenges to government and other stakeholders is to provide sustainable public transport to the increasing population.

More recently, the scope of public transportation services in some places in the capital city (Accra) has expanded to include motorcycle taxi services (Oteng-Ababio, 2011). By adopting the use of motor transport, pillion riders avoid traffic congestion and an increase in travel time, although this means of transportation is highly dangerous (Peden et al., 2004).

Notwithstanding the number of advantages of the use of Okada as a means of transport, it has its unforeseen risks to both the rider and the pillion rider (Chalya et al., 2010). For example, road traffic accidents and injuries present a challenge to public health as it is the leading cause of disability or death considering the manner, behaviours, thinking, attitude, and, in general, how riders perceive risk.

Records from NRSC, the agency responsible for safety on roads in Ghana shows that in 2016, 2,289 motorcycles were involved in several road crashes. However, the statistics failed to differentiate between private and commercial uses of these motorcycles. Examining the reasons for the increase in road crashes, the DVLA in 2016, the authority responsible for vehicle registration in Ghana and analysing of road accidents confirmed that there had been a rapid

increase in the number of registrated motorcycles, from 2010 to date. Fears are that this increase in ownership will mean more motorcycles on the road, which is more likely to result in more injuries. Kudebong et al., (2011) and Ackaah and Adonteng (2011) estimated that the burden of motorcycle crashes in Ghana was about $1.2 million if quantified to loss of lives and properties. Unfortunately, and most worrisome, it is the economically productive age group who are most affected since they are involved in both the operation and patronage of Okada (Peltzer, 2011; NRSC, 2011; Oteng-Ababio and Agyemang, 2012). This indicates that travellers still stand at high risk. Therefore, safety measures must be put in place to minimise the problem.

Okada operations have caused mayhem to the extent of provoking academic introspection, including the works of Ackaah and Afukaar (2010); Akaateba and Amoah-Gyamfi, (2013); Akaateba et al., (2014) and Dapilah et al., (2017) and others. Unfortunately, these studies were primarily carried out in the northern part of the country where riding is intensive and used mostly for private purposes. Despite the various media reportage on the risk and challenges facing Okada riders and pillion riders as highlighted by Amoah (2011); Bessey (2011); Avor (2014); Musah Yahaya (2015); Bessey (2018) and Amankwa-Baafi (2018), limited academic attention has however been given to the commercialisation of motor riders, much less the pillion riders who patronise the services in southern Ghana. This is because, with the exception Oteng-Ababio and Agyemang (2012; 2015), Zuure and Yiboe (2017) and a few others who have examined Okada in southern Ghana, less attention has been given to this study topic. Earlier studies conducted in southern Ghana as noted above is that the authors' have concentrated on the demand and supply of Okada services, the viability of the Okada business, efforts to criminalise Okada, the resistance from operators, and the commercialisation of motorbike transport and its impact on the youth. However, the risk perception and challenges of Okada riders and pillion riders have so far not been investigated.

The study contributes in filling the gap by examining comparatively the risk perception of Okada operators within Accra and Ashaiman.

Knowledge obtained from the analysis of the field data is expected to aid in the development of measures to help minimise some of the risks associated with Okada in the studied area and the rest of the country.

1.3 Aims and Objectives of the Study

This study aims to understand motorcycle riders' perceptions of risks and how this knowledge feeds into their attitudes and practices towards taking safety precautions in their activities. Specifically, the study aims:

I. To ascertain the socio-demographic characteristics of Okada operators.
II. To examine how Okada operators perceive risk.
III. To assess the use of helmet and other safety protective gears in the operation of Okada.
IV. To analyse the role of stakeholders in ensuring the safety of Okada operations.
V. To determine the perception of other road users about the operations of Okada.

1.4 Research Questions

I. What is the socio-demographic profile of Okada patrons and operators?
II. What is the attitudes, knowledge, beliefs, and behaviours of Okada operators towards everyday risk?
III. What is the extent of use of helmets and other protective gears in the operation of Okada?
IV. What role do stakeholders play in ensuring road safety with regards to Okada operation?
V. What is the mindset of the general public on the use of Okada?

1.5 Hypothesis 1

I. Null Hypothesis (H_O):

There is no significant relationship between Okada riders in Accra and their risk perception.

II. Alternate Hypothesis (HA):

There is a significant relationship between Okada riders Accra and their risk perception.

Hypothesis 2

I. Null Hypothesis (H_O):

There is no significant relationship between Okada riders in Ashaiman and their risk perception.

II. Alternate Hypothesis (HA):

There is a significant relationship between Okada riders in Ashaiman and their risk perception.

1.6 Justification

Motor taxi is a form of transport which has gained acceptance among some sections of commuters although it is said to be a risky mode of transport means. This could be as a result of the deficit and challenges in the transport system and the hectic traffic condition in the city. For this reason, the risk perception of riders must be investigated, considering the high rate of motorbike accidents. The findings for the study can contribute to providing the authorities with an extensive array of knowledge on the risk perception and their implication on the use of motor taxis. It can also help shape and direct further research into motor taxi operations in Ghana.

The findings of the survey can be very vital for the government and policymakers to plan towards avoiding ad hoc and piecemeal planning and help with the implementation of policies that enhance and improve the safety of Ghana's public transport system.

1.7 Organisation of Chapters

This study has five chapters with each chapter addressing a broad heading. Chapter one introduces the subject matter, outlines the background to the study, statement of the problem, the objectives and research questions and the organisation of the study.

Chapter two presents the literature review of relevant issues on the topic. The summary includes an empirical perspective on the use of motorbikes, the perception of both the riders and the pillion riders as well as the conceptual framework employed.

Chapter three highlights the study area and the research methodology which comprises of sub-themes like study design, study population or sample, data sources, sampling procedures (sample design and sample size), research instrument, data collection method, ethical considerations and the limitation of the study.

The focus of Chapter four is the presentation and discussion of results with a backdrop of existing literature and theories.

Chapter five consists of the summary of the main study findings, conclusion, and recommendations for policymakers and also adding knowledge to geography.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter reviews the literature on the subject area of the study. In other words, literature review involves the study of related works (Yaro, 2010) and seeks to present the state of knowledge and theory on the set of issues. In this chapter, key terminologies are defined, and a general overview of the existing literature regarding the risk perception is brought to the fore. This helps the researcher to know what has already been done in the subject area and also serve as a guidepost for the study. This section also discusses risk-taking attitude, road safety, and knowledge of road safety. This is intended to help the researcher fully analyse and discuss the results of the study and juxtapose them with previous findings of other researchers. Finally, the theoretical overview and conceptual framework are presented at the end to guide the entire research.

2.2 Perception of Risk (PR)

The term ‘risk’ encompasses the probability and the amount of expected severe losses and consequences resulting from the interaction between natural or human-induced hazards and unsafe conditions (ISDR UN, 2002; Gain and Hoque, 2013). McKenne et al., (2006) further explained risk perception as the ability to anticipate unforeseen or forthcoming events. Risk is part of everyday life and understanding it relates to the ability to define what could happen in the future, given a range of possible alternatives to choose from. Boholm (2003) studied people's perception of risk and concluded that it is socially constructed. Risk perception is integral as people use it to interpret the physical and social world (Frank et al., 2011). As such, the action or inaction of a person to activity is mainly dependent on how the person perceives the risk associated with that activity.

Although all activities have some inherent risks, some things involve more risk as compared to others. Humans and animals are thus hard-wired to perceive risk as a precursor to action or inaction as a means of self- preservation and maybe survival of the species (Rollin, 2010). For example, in relation to the study, the perception of risk by an individual informs him/her on whether or not to undertake that activity and even how to undertake it. In that sense, a person who perceives riding to be very risky might avoid it completely.

On the other hand, if the individual sees riding not to be dangerous, such a person might rather ride carelessly as he/she perceives the risk of adverse effects less (Desmet, 2012). All things being equal, the riskier an individual sees an action, the more likely the person would take precaution to minimise the risk involved or avoid that action altogether. Motorcycling as art is a mode of transport for many commuters in the developing world such as India and Indonesia and it remains a mainly luxury good in developed nations like America and the United Kingdom, where they are used mostly for recreation, as a lifestyle accessory or a symbol of personal identity (Norcliffe, 2015). This explains the extent to which people accept to ride a motorbike as a means of transport irrespective of its risk.

Nonetheless, the assessment of traffic risk perception is often subjective because the perception of risk is highly individual, and depends on experiences with accidents and potential rewards of risk-taking (Lawton et al., 2007; Nevelsteen et al., 2012). Therefore, after perceiving what is determined as a risk factor, psychologists believe there is a judgment of the risk by the individual taking into context the perception of the risk upon which a decision is made as to whether the object or action in focus is perceived as a risk or otherwise (Slovic, 2016). After the individual has concluded as to the level of risk the object or event possesses, an action is taken by the individual to prevent the suffering of the adverse effect of the happening, hence fight or flight. In the judgment

of whether or not to stay and face the uncertainty with strength (fight) or to flee the presence of the uncertainty is very subjective and is influenced by a lot of variables (Oltedal and Rundmo, 2006).

Several variables have been identified through studies that have an impact on the perception of risks by individuals. Using the psychometric approach to risk perception, the knowledge of risk is influenced multi-dimensionally. The interplay of these risk factors is what, therefore, affects how the individual perceives risk (Mckenna et al., 1998). In the same article, a total of nine factors were isolated in this approach to have a bearing on risk perception.

I. Being the voluntariness of risk,
II. The immediacy of effect,
III. Knowledge about the risk by the person (s) who are exposed to the potentially-hazardous risk source,
IV. Knowledge about the risk in science,
V. Control over the risk,
VI. Newness (i.e., are the risks new and novel or old and familiar),
VII. Chronic/catastrophic (i.e., a risk that may kill people one at a time or a risk that can kill a large number of people at once),
VIII. Common/dread (i.e., whether people have learned to live with and can think about the risk reasonably and calmly, or is it a risk that people have great dread for, on the level of a gut reaction) and
IX. The severity of consequences.

Voluntariness of risk connotes the will at which a person is exposed to uncertainty. When people are exposed to uncertainty by their own will or (in) actions, the individual is more likely to perceive

the risk more because the perception of the burden of responsibility falls on the person who entered voluntarily (Oltedal and Rundmo, 2005). To this end, an individual who rides or engages the services of an Okada willingly perceives the risk lower than a person forced to ride or board an Okada. Individuals also perceive the risk higher for (in) action have an immediate effect as compared to activities that will have adverse effects relatively later. For example, people will perceive an activity that can kill them immediately, such as a motorcycle (Okada) accident as compared to another action such as exposure to chemicals that might kill them after 15 years.

Further, the level of knowledge of the person exposed to risk source also affects the perception of risk (Wachinger et al., 2013). This knowledge can either be as a result of experience or by information gathered through third parties. If an individual does not know the adverse effects of a risk source, such a person would not be able to rightly perceive the risk factor as compared to another who has perfect knowledge of the risk factor. Similarly, the newness of whether or not a person has ever been exposed to information about the risk source reflects clearly on the individual's risk perception (Lee, 2010).

The perceived number of people that will directly or indirectly be affected by the risk also informs the perception of the risk, example, if the risk is known to be able to wipe out a community as compared to one that can affect a dozen people at most, the former will be perceived as being riskier. Another risk is the commonly perceived dread that is associated with such a risk factor. A dreaded risk source is perceived as being riskier as compared to one that is perceived as normal; the reverse of this assertion also holds (Oltedal and Rundmo, 2006). For example, the Okada rider has learned to live with the risk involved in his/her operations neglecting all other reasonable factors that might easy lead to an accident/dead. Finally, the severity of the consequences that might arise from exposure to the risk source also affects how it is perceived (Wachinger et al.,

2013). A risk source that is known to cause an accident might be perceived to be riskier as compared to one that causes slight injuries (Klein et al., 2003). Of the nine properties, factor analysis based on aggregated data showed that dread and novelty were the most important dimensions influencing risk perceptions.

Other variables have also been identified in the literature as having a statistically significant influence on the perception of risk by individuals and groups (Henwood et al., 2011). Some of the known variables that influence perception of risk are age, sex, education, and race (Flynn et al., 1994). For instance, women are known to perceive risk higher than men in all traffic and health risk studies (Henwood et al., 2011; Harris and Jenkins, 2006; Andersson, 2011).

In a possible explanation of the gender differentials in the perception of risk, Helsper and Whitty (2010), opines that it might be because men and women perceive risk differently since they are engaged in different activities. However, the tangent of the assertion that is of relevance to this study is that gender affects what both categorise as being risky. In other words, an entire (in) activity that might be perceived as risky by one gender category can be statistically different from that of another gender category. In the case of this study, what this means is that perhaps females may perceive riding at top speeds, manoeuvres and without certain gears as being a risky behaviour whereas males might not recognise these actions as carrying a proportionate risk but rather a normal action. In other words, some females tend to regard risk sources as riskier as compared to how the risk sources are perceived by males (Wells et al., 2008). Also, what might constitute risky behaviour or situation for a male might not necessarily be regarded as the same for a female; the reverse of this assertion is also true.

Age differences have also been cited as a reason for the differences in the perception of risk (Oginni et al., 2007). Generally speaking, people get risk-averse as they age, i.e., older people are

risk-averse as compared to the younger ones. As the perception of risk informs behaviour, young people are therefore more likely in risky behaviour. Reasons ascribed for this observed trait are varied as young people tend to overestimate their skills, they possess to mitigate a mishap, whereas as an individual grows older, this estimation tends to be more accurate. Hence, young people in some cases engage in risky behaviour because they think they can be able to avoid any mishap from happening skillfully. Example, a young Okada rider might, therefore, feel he may use his skills to avert or prevent an accident. Age as a predictor of risk perception might make the perception of risk in this study lower as most of the operators of Okada are youthful. Again, age as a predictor is the cause of increasing the higher rate of Okada accidents as most of these riders are youthful (DVLA, 2010, 2016).

Also, young people tend to be generally more optimistic as compared to their older counterparts; this is to say that young people tend to underestimate the possibility of an accident happening which is common among Okada riders is resulting in high accident death toll (Oginni et al., 2007). Therefore, despite the appeared risk or danger ahead, young people have the propensity to underestimate the probability of the occurrence of an accident (Sicard et al., 2001).

Education is also thought to be a factor when it comes to the perception of risk among people (Benthin et al., 1993). Although in the case of the study used for this assertion, education was measured strictly in terms of the formal sense of the concept. The results showed that statistically, respondents who had a college education had a more accurate estimation of the risk source as compared to others without a college education (Moen and Rundmo, 2005). Per the observed positive relationship between education and higher risk perception, then it is to be expected that riders with a higher level of education are to have more excellent knowledge on risk perception on Okada operation and the adherence to safety measures.

Safety experts have also judged risks as people without their training and experience. The experts tend to stress the risk probability, whereas laypeople always perceive in terms of the consequences the risk source can produce (Rundmo and Moen, 2006). In urban transportation, familiarity with the risk, the source can also influence the judgment of these sources. Therefore, it could be hypothesised that the frequency of use of travel modes is positively associated with perceived risk (Rundmo et al., 2011).

An addition to the science of risk perception is that of risk judgment. The concept of risk judgment combines the perception of risk as well as a new one- risk worry (Oltedal and Rundmo, 2005). It must be noticed that the concept of risk perception is purely a cognitive construct, however, for risk reduction to be possible, there is the need to assess risk not only cognitively to get a more comprehensive picture of how an individual measures risk. Risk judgment, therefore, is a build-up upon risk perception because it includes in its assessment of dread and emotion to the risk source. To define risk perception as a cognitive construct also makes it possible to compare perceived risk and real risk. Contrary to perceived risk, objective or real risk estimates are based on formative indicators, i.e., indicators that are not necessarily associated with each other (Rundmo and Moen, 2006).

This means that risk evaluation and action is cognitively based, i.e. on the thinking of the individual. However, another paradigm examines and predicts risk evaluation as a combination between the cognitive and emotional state of the individual to play a role in risk perception. The risk-as-feeling approach to risk perception is, therefore, attempts to acknowledge the perception of risk into two distinct constitute parts; cognitive and intuitive (Klauer et al., 2014). The risk-as-feeling, in essence, posits that the emotional state of the individual of interest also has a role to

play in his or her perception of the risk and perhaps more importantly, the reaction to the stated imminent risk.

The cognitive and intuitive (emotional) aspect of risk perception is thought to work parallel at the individual level. However, the process by which the two of them are used to form perceptions and subsequent behavioural actions is thought to be a reciprocal each one affecting the other (Ajzen, and Fishbein, 2004). Thus, among other cognitive variables that are assessed by people as part of their risk perception, individuals consider the probability of such an adverse event happening to them and inform the perception of risk of that event by extension their actions (Asiamah et al., 2002). People also consider one aspect of the perception of risk quite intuitively, such as the severity of the consequences of the adverse events associated with a particular action or course of doing things. Naturally, individuals will very likely perceive activities with more severe or drastic outcomes as being riskier as compared to others with relatively less severity of consequence. Tentatively, if an individual perceives road accidents involving motorcycles to be fatal to the rider or pillion, such an individual will, in turn, conclude that riding of the motorcycle is hazardous and inform his or her decision based on this reason (Bediako, 2004).

Drottz-Sjoberg (1991) concluded that the most important factor considered by people in the aversion and mitigation of risk is the perceived severity of the consequence of the action. So, people were most likely to avert and or mitigate risk if they perceive the consequences of such a thing to be dire. However, the study did not seek to explain or to understand the reason for such a statistically significant factor of severity. Rundmo and Moen (2006) found that the importance of severity has over risk aversion is as a result of worry. These scholars distinguished between the two constructs of risk perception as being a purely cognitive function and that of fear as an intuitive construct of feelings. Worry they opined to be the level of discomfort an individual felt just about

thinking of motorcycle accidents. Rundmo and Moen (2006) found that anticipatory worry was directly associated with demands for risk mitigation in transport. A study by Nordfjærn et al., (2016) had a similar findings though comparatively the statistical association between worry and risk aversion and mitigation was only marginally weaker.

In spite of the above explanations as to how riders perceive risk, riding behaviours, practices, attitudes and risk perception on road traffic risk differ from one geographical region to the other. In Europe and America, riding is mainly for mere leisure, unlike China, where it is used for commuting (Fishman and Cherry, 2016). It noted that the causes of road traffic crashes are speeding, overloading, non-observation of traffic rules, poor road design and maintenance and alcohol and drug abuse. Also, road accidents in these regions are mostly associated with the environment and the behaviour of riders.

In Africa, the ownership and usage of motorcycles have been on the increase where it is usually used for commercial purposes. The rate of increase in motorcycles registration ranges between 40 and to 70 % in countries like Nigeria, Togo, and Benin (DVLA, 2018). Many reasons have been attributed for this development, which includes but not limited to infrastructure and the convenience and flexibility that it provides. In Africa, risk perception of traffic road accident injury needs to be understood in the context of culture and superstition belief (Lagarde et al, 2007). For example, in cultural context, a study in Ivory Coast and South Africa indicated that riders believe road accident is caused by witches. Therefore, a less conscious effort is made in protecting oneself from accidents.

In Ghana, the rate of increase has been most profound in recent years (DVLA, 2016), and it has increased roads accidents (Afukaar and Ofosu-Amaah, 2003). The rate of increase in the number

of new motorcycles is significantly different across the country. The five northern regions experienced a relatively lower rate of growth in the number of new motorcycles as compared to that of the southern areas of the country (DVLA, 2016) where it has been commercialised. This proliferation of motorbike has happened despite the relatively dangerous nature of its patronage to both rider and pillion rider (Peden et al., 2004; Oginni et al., 2007; Labinjo et al., 2009). The rider and pillion rider of a motorcycle are vulnerable, especially as the speed at which motorbikes travel diminishes the inertia that the human body has to withstand in case of a road accident. As such, when there is a crash, the rider's launches violently unto the roads and this is also responsible for some of the injuries and fatalities clients of Okada are exposed to. As is the case in Ghana, the accidents involving motorcycles have also been significant, and this is what has necessitated the need for road users' perception of safety to be scientifically studied.

In relation to transport, the expectancy of being involved in a road accident is termed as perceived risk. Motorists must, therefore, realise what establishes a threat, (exposure to the hazard) be alert for such dangers, and take precautions to avoid them since road hazards are the main causes of road accidents (Cardwell, 2011).

2.3 Road Safety

Safety is described as the condition of protection one's self from injury or death. Tisca et al., (2016) explained traffic safety as "an epitome of the public policy in the arena of protecting human life and health, by preventing road traffic accidents and reducing its implications." About this study, safety is operationalised to mean the level of adherence to traffic rules, regulation, and the consistent usage of personal protective gears.

Road safety refers to a variety of methods and measures aimed at reducing the risk of accidents

that occur as a result of travelling on roads (Elvik et al., 2009). Safety of a traffic system is an indicator of the road transport system, as a result of the interplay of factors that determine its operation and outcome. Traffic accidents involve direct costs which are supported by the health sector, by businesses and the families of those involved. Road safety, therefore, is a matter of individual, assemblies, national, and worldwide interest, and the approaches must consider the shared responsibility of all stakeholders involved (Reported Road Casualties Great Britain [RRCGB], 2007). Motorcycle riders and pillion riders are the categories of road users with the highest rate of casualties and fatalities (Elvik et al., 2009). As compared to drivers, the motorcyclist is 24 times more likely to be injured in a road traffic accident (per mile ridden) (Oteng-Ababio and Agyemang, 2015). Motorcycle users are over 60 times more likely to be killed in a reported road traffic accident per mile ridden (RRCGB, 2007). These figures reveal the real dangers which accompany the usage and patronage of motorcycle usage in Britain and the same can be said for that of users of motorcycles in Ghana if not higher.

These statistics, therefore, shows that to preserve life and minimise the risk of accidents, motorcycle users will have to be vigilant on the roads and also adhere to the strict observance of safety measures in the usage of their vehicles and riding on roads.

According to AdrianaTisca et al., (2016), road traffic safety can be guaranteed only by the simultaneous fulfilment of the following conditions:

I. Strict compliance by drivers and pedestrians of traffic rules on the roads;
II. Good technical condition of vehicles;
III. By allowing unhindered movement of cars, at a foreseen speed and according to the designed intensity under the conditions approved by the plan and road profile;
IV. By preserving adequate road conditions for transport and exploitation (flatness, adhesion

coefficient) by maintenance and repair units as established during the execution phase, and by timely removal of the influence of external factors, primarily climate-related ones (fog, rain, ice, snow, etc.)

V. By adequately informing drivers of road conditions and traffic arrangements, by installing road signs, and in some cases, by directing traffic.

Similarly, strategy for the prevention of injury has been successful by the use of secondary approach; where the intensity of injury is drastically reduced after an accident. Personal Protective Equipment (PPE) are vital components of road safety, which help reduce the variety of hazards. PPE refers to clothing and equipment worn to protect and minimise exposure of the body against injury and infection. For instance, the wearing of helmet, protective hearing device (earplugs, muffs), gloves, full-body suits, eyeglasses, and safety footwear if employed to protect the user against safety risk during riding. For example, some studies have shown that the use of a crash helmet is very vital and effective since it helps in saving lives and reduce the severity of injury to the head (Ferrando et al., 2000; Servadeiet et al., 2003)

De Rome et al., (2011) equally confirmed the importance of PPE stating that "Motorcycle protective clothing has been associated with a significantly reduced risk of injury in crashes, particularly when body armour is fitted. Compared to those wearing non-motorcycle clothing, motorcyclists wearing motorcycle protective clothing close-fitting with body amour were significantly less likely to sustain injuries to the protected areas. For example, the risk of foot or ankle injuries is reduced by 53% by wearing motorcycle boots". This stresses the importance of safety gears and how it will improve the safety of Okada riders if adapted.

In spite of the declaration made by the UN in 2010 to ensure road safety and importance of the use of protective gears, some riders and pillion oppose the use of safety apparels to the extent of

agitation which has led to the repeal of the use of helmets and other protective gears in some countries as highlighted by (Saunders et al., 2019; Saunders et al., 2018; Hothem et al., 2017). In contrast to the use of safety gears, it implies that riders and pillion riders are clearly at increased risk for mortality. Although many argue protective gears usage should be a personal freedom/ decision, the economic burden to society that results should not be ignored. Like many developing countries such as Ghana continues to face high morbidity and mortality rate from Okada crashes, more resources need to be invested in both education to save lives of Okada users.

2.4 Knowledge on Road Safety Measure

Knowledge ofroad safety measures in the country plays a vital role in efforts aimed at preventing road traffic injuries among road users especially motorcyclists. This study seeks to determine the level of knowledge among the motorcyclists with regards to road safety measures that seek to keep them safe from accidents. Injuries caused by traffic road accidents are one of the third leading causes of death among people 5 to 45 years of age in Asia (Razzak et al., 2004). In a related study by Lalitha et al., (2015), it has predicted that, unless immediate and effective measures are taken, road traffic injuries will become the fifth cause of death in the world, resulting in some 2.4 million deaths each year that could have been avoided by taking simple road safety measures.

The General Assembly of the UN has declared 2011-2020 as the "Decade of Action for Road Safety." The declaration is necessary because Road Traffic Accidents (RTA) have become a significant cause of morbidity and mortality, especially among adults and middle-aged people who are the most economically productive age groups in society. The importance of knowledge and the practice of road safety measures should be emphasised in the prevention of RTAs. Embedded in the ability of riders of Okada and pillion riders to observe and adhere to road safety measures is the knowledge of traffic rules as well as best practices.

Before the declaration by the UN, a study conducted in Nigeria by Adogu and Ilika, (2006) revealed that, two thirds of the respondents included in their study had a very poor knowledge of road traffic codes and safety giving the indication that most motorcyclists do not undergo any form of formal training where they are given the basics or fundamental principles underlying the road and safety measures. This is highly the case in Ghana as there are no motorcycling schools like we have for vehicles where people will be taught the road and safety measures.

Another related study Demberelsuren and Suvd, (2010) also showed a similar trend. The study considered the upgrading of the quality and conditions of roads, illumination, crossroads, and pathways as well as construction bicycle roads as the most important measures to improve the traffic safety situation. The results of the study showed that the most common violation among pedestrians is crossing a road at undesignated places. In the case of riders, the most common violation was crossing a red light. 20.5% of pedestrians of the study had been involved in a traffic accident. Out of them, 76% were younger than 35 years old. Furthermore, the study found that the knowledge of pedestrians and drivers about traffic rules is not sufficient, regardless of age and gender, but increases with increased education level among all respondents and with age among women. During testing of the knowledge of traffic rules among participating riders, 72% scored satisfactorily and 13% were evaluated as having insufficient knowledge. The majority of pedestrians considered the violation of traffic rules and crossing a road at non-designated places as an acceptable thing to do.

Another literature considered in this study was an article by Khan et al., (2013) on the topic Knowledge, attitude and compliance with safety protective devices among commercial motorcyclists in Tudun-Wada Zaria, North-Western Nigeria. In the same study, the findings revealed that a significant proportion of the respondents (88.0%) were aware of safety protective

devices but the majority of them (89.2%) have poor knowledge of what a safety protective device is. The only safety protective devices known by the respondents were; crash helmet and visibility jacket constituting 92.7% and 22.7% respectively. This implies that most of them had knowledge of the safety measures in relation to the helmet and protective attire usage.

The findings also showed a significant statistical relationship between the educational level of respondents and knowledge of safety protective device ($\chi 2 = 5.143$; df = 1; $p<0.05$) those with a higher level of education were found to be more knowledgeable. This implies that a person's educational level does have an effect on the knowledge towards road safety measures among motorcyclists and thus suggested education be given to all motorcyclists.

2.5 Risk-Taking Attitude

Risk-taking among different persons may vary. Some people are conservative concerning risk-taking, while the opposite is exact for others. Differences in the attitude of taking risks when riding can be related to many factors, such as gender, age, culture, and experience and perhaps even to physiology. For instance, men tend to be more risk-seeking, and older people tend to be more risk-averse (Machin and Sankey, 2008).

Eagly and Chaikn (1998) explained attitude as the tendency to evaluate an entity with some degree of favour or disfavour ordinarily expressed in cognitive, affective and the behavioural responses. Attitude varies from one person to the other, and it is based on reasoning. Fishbein and Ajzen (1980) use behaviour and attitude as a determinant, which influences the persons reasoning pattern. The researcher strongly suggests that the intention of exhibiting specific behaviour is easily predicted based on the attitude of the person towards and the person's personal norms (morals) regarding that behaviour. Existing research evidence that there is a relationship or correlation between behaviour and attitude, which affect one reasoning (Assum, 1997; Packer and Jordan,

2002). A study by Assum (1997) and Adogu and llika (2006) measured general attitude related to road safety and road traffic behaviour and found a significant difference between riders even though the study was based on attitude (risk perception) and accident risk.

West and Hall (1997) define the attitude of taking a risk in teams of riding as a way of taking additional precautions which do not infringe the traffic laws but increases the risk of being involved in a traffic accident. For example, a risk-taking rider can ride at the highest permissive speed on a given road, although speeding is a major contributing road traffic accident even the rider is in all safety gears.

Therefore, a risk-taking attitude is also a precursor to risky driving behaviour. If we can measure a rider's risk-taking-attitude, then we can accurately infer his risky driving behaviour and successfully change those behaviours (Ulleberg and Rundmo, 2002). The current study, therefore, sought to find out the individual and combined effect of risk perception, risk-taking attitude, and their relations on risky riding behaviour among the riding population. The interest of the study was to determine the extent to which risk perception and risk-taking attitude predict Okada riders' behaviour in the Ghanaian context knowing the dangers involved in the operation.

2.6 Road safety attitude of motorists

The attitude of one towards another; object; or idea can be either positive, negative or both. According to Brehm et al., (2002), attitude can be considered as an evaluative reaction to a concept such as a road safety measures. The study noted that attitudes towards a concept may be mixed and not necessarily be consistent within the individual.

Riding safely is held in high esteem among dedicated motorcyclists. However, the enjoyment of taking risks and the enjoyment of speed, in particular, are higher for motorcyclists than for car drivers. That notwithstanding, although speed violations are a significant predictor of accidents,

the biggest predictor of crash involvement among motorcyclists is not attributed to non-deliberate errors but rather than violations of the safety measures. Studies from various African countries thus; Ethiopia, Ghana, Kenya, Tanzania, Uganda, South Africa, and Zimbabwe indicate that most of the road crashes are largely caused by a variety of factors consisting of human error, road conditions, and vehicle such as speeding and dangerous overtaking, alcohol and drug abuse, driver negligence and poor driving standards, vehicle overload, poor maintenance of vehicles, bad roads and hilly terrain, negligence of pedestrians, and distraction of drivers (Peltzer, 2011).

The knowledge that a rather high proportion of traffic accidents are human-induced is no news, especially in the context of many Sub-Saharan African nations (Iversen, 2004). Some studies have concentrated on exploring the link between the perception of the risk of accidents and other prevention-based concepts such as road safety, traffic compliance amongst others. Lagarde et al., (2007) opined that the perception of risk could not be detached from the attitude an individual or a group of people hold of such a causal variable or factor in the occurrence of road accidents. The author, therefore, argued the perception that the risk perception of an individual or a society could only be understood, measured and predicted if the culture of the people is considered one in the whole (Akaateba and Amoah-Gyimah, 2013). The source of this bias in judgment may also be deeply rooted in culture because since accidents (of every kind) happen in all cultures, custodians of the culture find a way to deal with that aspect of life. In essence, every culture has an outlet of rationalising accidents as part of life.

Kouabenan (1998) concluded based on results, and a study carried out in Ivory Coast that professional drivers showed a significantly high level of superstitious beliefs. Many drivers share deep-rooted mystical and fatalistic attitudes that may lead to systematic errors in the judgment of risks, and this could cause road traffic accidents. Peltzer (2002) in a South African study found

that up to a fifth of all white drivers had fatalistic beliefs, and quite shockingly there was a significant relationship between a non-fatalistic attitude and seat belt use. Peltzer and Renner (2003) corroborated this in a study on South African taxi drivers by showing that South African taxi drivers who had expressly fatalistic attitudes exhibited a relatively high degree of risk-taking behaviour toward road traffic accidents as compared to other drivers who had no fatalistic beliefs. Differences in the gender of individuals do not seem to play a statistically significant role in their attitude towards road traffic accidents. However, men are known to be more like engaged in road traffic accidents (Moshiro et al., 2005). An attempt at an explanation of this phenomenon is that men and women tend to assess their vulnerabilities in road traffic situations; hence, women think of themselves of more vulnerable than they are empirically and vice versa (Millstein and Halpern-Felsher, 2002).

2.7 Way forward to ensure road safety

It is no news that the concept and achieving road safety is a multi-faceted one that requires a multi-disciplinary approach to make possible and achievable. In the interest of the study, the author's suggestions would focus on the two main components being the riders and patrons of Okada and law enforcement, particularly the Ghana Police Service.

Several attempts have been carried out in the quest of reducing and preventing road traffic accidents and injuries in Ghana. Laws and regulations have been passed and implemented by the state, but the enforcement of these laws by both governing body and the officers in charge of enforcing these laws have not been rather weak as we see how indiscipline motorcyclists are on the roads especially in obeying the rules of traffic. On this note, until the laws banning Okada is amended it would be prudent for law enforcement agencies to be up and doing devoid of any

favouritism and partiality. The regulations must be met firmly, and if implemented correctly, it will go a long way in reducing motorcycle accidents in GAMA and the nation at large.

In light of the above observations, the NRSC (now National Road Safety Authority) in collaboration with other stakeholders in the road sector should seek to play a distinctive and more active role in preventing road accidents. The main goal is how to effectively bring about a reduction in road traffic injuries in Ghana. To achieve this, there should be the adoption of an effective preventive strategy through multi-sectoral approaches. For example, the author opines that there is the need for regular education campaigns for public awareness and sensitise both operators and pillion riders through media houses (such as television, radio, and newspaper, social media platforms) and street walk/campaign to desist the use of Okada but in the worst-case scenario, the few pillion riders who would opt for Okada services should be aware of the importance and usefulness of helmets and other safety apparels. Also, the outcome of this study would further provide crucial information, contribute to knowledge and guide policymakers in drawing favourable prevention programs and taking essential decisions to reduce the prevalence of road traffic injuries by motorcyclists.

2.8 Theoretical Concepts

The term “theory” is mostly used in various ideas in the humanities and social sciences (Johnston et al., 2000). In its broadest sense, a theory can be understood as a set of statements and propositions used in explaining and interpreting phenomena (Johnston et al., 2000). Crano et al., (2014) state that, “a functional theory serves as a fountain of possibilities from which researchers may generate a wealth of hypotheses to be tested via the scientific method. In the same article, the emphasis is laid on the need of theory for effectively understanding of the phenomena.

Research conducted in human geography considers the reality associated with the human-environment relationship, both in space and time. These are often multi-faceted and complex; therefore, the need for appropriate contextualization (Crano et al., 2014). However, this does not take the primary perspective of the concept away but only helps elucidate more on the concept or theory. In this vein, the Theory of Reasoned Action and Theory of Planned Behaviour is employed in a bid to gain an understanding of risk perception and factors that influence decision making, the reasons behind the modal choice and the challenges associated with the risk perception of Okada riders.

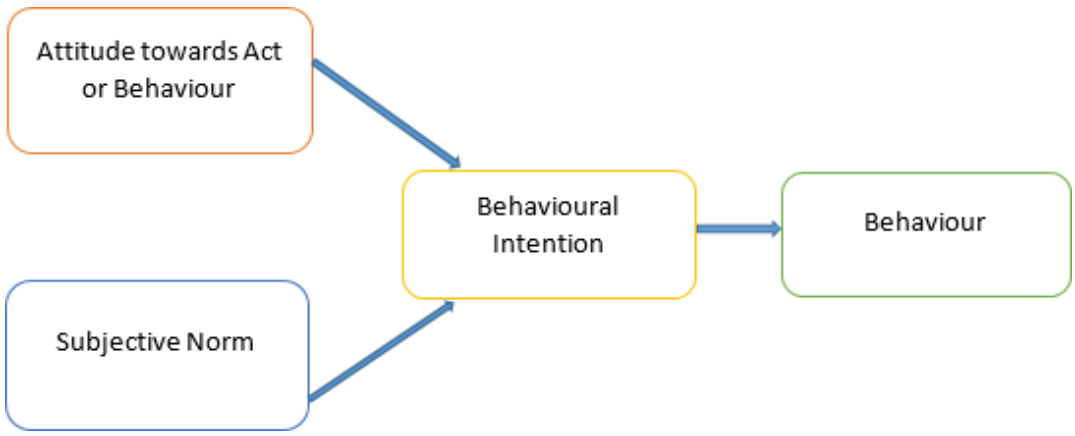
2.9 Theory of Reasoned Action

Third Law of Motion by Newton which state that "For every action, there is an equal and opposite reaction", the Theory of Reasoned Action (TRA) applies equal principle to human behaviour and attempts to predict the "reaction" of an individual to a given "action". Martin Fishbein first developed the TRA in the late 1960s while Fishbein and Icek Azjen revised and expanded it in the subsequent years: the theory focusses on a person's intention to behave a particular way. The TRA suggests that a person's behaviour is determined by their intention to perform the behaviour and that this intention is, in turn, a function of their attitude toward the behaviour and subjective norms (Fishbein and Ajzen, 1975). The best predictor of behaviour is intention (the belief that the behaviour will lead to the intended outcome). The intention is determined by some factors: the attitude toward the specific behaviour and the subjective norms. The more favourable the attitude and the subjective norms, the stronger the person's intention to perform the behaviour.

The TRA (Ajzen and Fishbein, 1980) maintains that volition and intention predict behaviour. ` According to TRA, if people evaluate the suggested behaviour as positive (attitude) and if they

think others want them to perform the behaviour (subjective norm), this results in a higher intention (motivation), and they are more likely to perform the behaviour. A high correlation of attitude and subjective norms to behavioural intention and behaviour has been confirmed in many studies (Gastil, 2000; Morgan, 2007). However, results of some studies gesture to a limitation of this theory that behavioural intention does not always lead to actual behaviour. A counter-argument against the strong relationship between behavioural intention and actual behaviour led to the evolution of the Theory of Planned Behaviour, a model which includes the impact of non-volitional factors on behaviour.

Figure 2.1 Theory of Reasoned Action



Source: Adapted from Fishbein and Ajzen, 1980

2.10 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) as an upgrade to the TRA, often mentioned and discussed with it. This provides a better perspective since the TPB reinforces and adds to the assumptions in the TRA. The TPB maintains what TRA postulated about human behaviour being governed by

one's attitudes and behavioural intentions characterised by the presence of social norms and the exercise of voluntary control. However, it incorporates several modifications that allow for greater accuracy and reliability in understanding one's attitudes and predicting his deliberate, planned and resulting in actual behaviour.

Icek Ajzen in 1991 proposed the TPB and explained that one's intentions best predict the individual's behaviour; intentions are in turn, predicted by attitudes about the behaviour, the subjective encasing the execution of the behaviour, and the individual's perception of their control over the behaviour.

The TRA was related to voluntary behaviour. Later on, behaviour appeared not to be 100% voluntary, and under control, this resulted in the addition of 'Perceived Behavioural' control. With this addition, the theory was called the TPB. The TPB has received considerable empirical support across transport and social behaviours, including risk perception and risk-taking behaviour or attitude

The TPB is a theory which predicts deliberate behaviour because behaviour can be deliberative and planned.

According to TPB, human action is guided by three kinds of considerations:

I. Behavioural Beliefs (beliefs about the likely consequences of the behaviour)
II. Normative Beliefs (beliefs about the norm/standard expectations of others)
III. Control Beliefs (beliefs about the presence of factors that may facilitate or impede the performance of the behaviour)

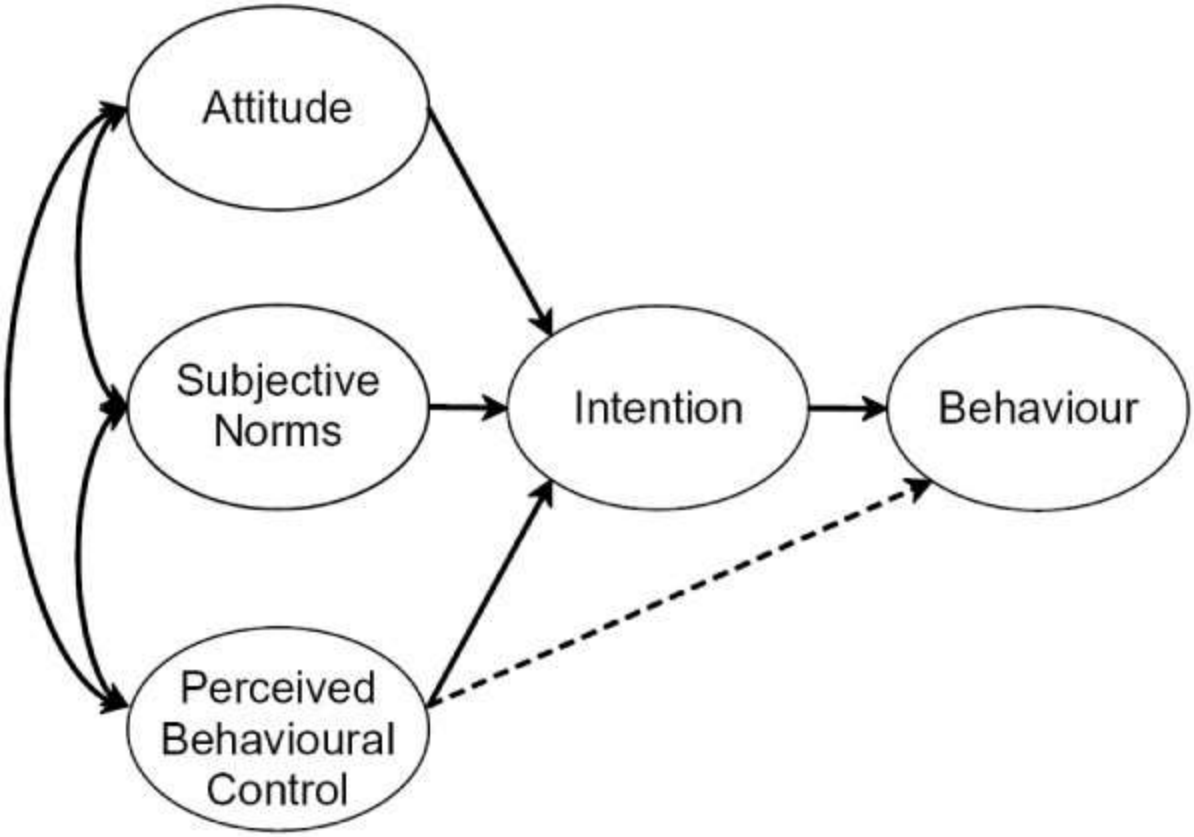
All three of Ajzen's considerations are crucial in circumstances when predicting the behaviour of people.

Researchers such as Bamberg and Reilly (1996) and Bamberg et al., (2011) have employed the TPB as an integrating framework for psychological factors underlying public transportation use. The TPB has been applied successfully to predict and explain various behaviours, such as committing traffic violations (Ajzen, 1991; Conner and Armitage, 1998)**.** It provides a relatively parsimonious theoretical framework for integrating various key constructs and a clear operational definition of each construct within the theory. The TPB proposes that intentions are the closest antecedents of behaviour, and intentions are, in turn, predicted by attitude, subjective norm, and perceived behavioural control. The TPB additional assumes that these components are, in turn, determined by outstanding beliefs for each component and evaluations of those beliefs: behavioural beliefs for attitudes, normative beliefs for social norms, and control beliefs.

Ajzen (1988) claimed that these beliefs are the informational foundation of behaviour and that the causes of behaviour can be traced ultimately to these beliefs. Therefore, changes in these beliefs should lead to behaviour change. Based on this rationale, some researchers (Montano and Kasprzyk, 2015) have designed intervention programs to change underlying beliefs to determine whether they change behaviour. Chowdhury and Ceder (2013) have investigated the impact of intervention programs by examining changes in beliefs that occurred after the intervention. For example, Chowdhury and Ceder (2013), assessed the effect of a U-pass program in Germany and demonstrated that the increase in bus use and decrease in car use was brought about, at least in part, by the changes in underlying beliefs about bus use.

In the present study, the researcher examined risk perception and how it influences the rider's behaviour.

Figure 2.2 Theory of Planned Behaviour (TPB)



Source: Adapted from Ajzen, 1991.

2.11 Limitations

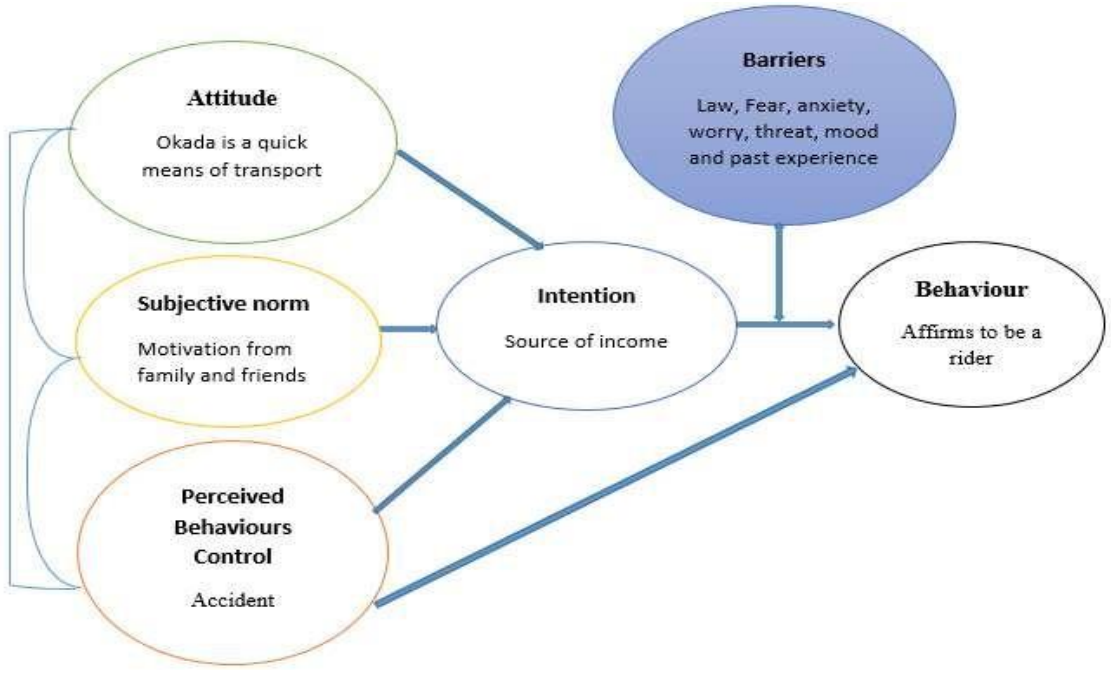
A limitation of this conceptual framework lies in the fact that human beings behave rationally, and since the framework assumes this behaviour of human beings, some may act otherwise and hence bring about extreme responses where decision making and behaviour change over time. Again, although the theory considers normative influences, it does not take into account environmental or economic factors that may influence a person's intention to perform a behaviour. Also, it assumes that a person has acquired the opportunities and resources to be successful in completing the desired action, regardless of the intention. In going around this limitation, the sampling technique adopted evenly spreads the various respondents to have a better representation of the research

responses across the study area.

2.12 Conceptual Framework

In guiding how researchers' think about a study topic, a conceptual framework is adopted. A conceptual framework expresses a philosophical perspective or a particular way of viewing knowledge that the researcher uses to inform a study (Clark and Creswell, 2014). In conjunction with the use of theory, researchers' use a conceptual framework drawn from literature to strengthen the quality and rigour of their research. Therefore, by identifying the conceptual framework, one gets a clear idea about how the study is being approached (Clark and Creswell, 2014). The conceptual framework for the study is inspired by the Theory of Reasoned Action and Theory of Planned Behaviour which has been modified to address the interest of this study.

Figure 2.3 Conceptual framework on risk perception



Source: Authors' construct, 2018, with linkage to Ajzen (1980, 1991, and 2018).

Intention directly influences behaviour and is shaped by attitudes, subjective norms, and perceived behaviour control regarding the behaviour. Nevertheless, attitude is a strongest motivational determinant implying that riders' decision to be an Okada operator anticipate the act as a safe and quick means of transport with the thought, motivation and approval factors (subjective norm [social norm and descriptive norm]) from fellow riders, family and friends.

Considering the potential obstacles and risk of having an accident (Perceived Behavioural Control), in that order, there is the likelihood that protective attire, helmet usage and adherence to road safety measures would be used and observed by riders against injury not neglecting belief (superstition): use of magical rings, armlets, and others with the aim of protection. Attitudes, subjective norm, and perceived behaviour are predictive of intention behaviour. This is bound to strengthen the intention and resolve actually to behave and act in that expected manner.

In the case of the Okada operation, the income/money-driven mentality of riders strengthen their intention with the idea of making a decent living out of the operations. Empirical validations of the TPB have revealed that the model reliably explains 40-50% of the variance in intention and that intention explains between 20 and 40% of the variance in actual behaviour (Sowa, 2013). This implies that even after initiating an action, there is still a possibility that one perception of capability could affect performance. In other words, not all intentions materialise to be behaviour. With this, the author introduces a predictor as ‘Barrier’ (shaded). The “Barrier” consists of factors which reduce the chance of an act being performed or fulfilled. The unlawful nature of Okada operation in Ghana (environment) has caused riders to face fear, anxiety, worry, harassment from security personnel and past experience has prompt both new and existing riders to desist from operating which reduces intention and actual behaviour on the use of Okada.

2.13 Chapter Summary

This chapter reviewed the existing literature on risk perception, risk-taking attitude, knowledge on road safety, and attitude toward road safety about Okada as a mode of public transport. The major trends of the existing literature indicate extensive research into risk perception from the global sphere, Africa, and the Ghanaian milieu. Many of such studies in Ghana focus on the private use of a motorcycle, policies guiding the use of motorbike, demand, and supply Okada commercialisation and monetary benefits of the business. The backdrop of these studies led to the investigation of the risk perception of Okada riders. The Theory of Planned Behaviour was examined critically within the contest on how riders perceived risk and risk-taking attitude.

Finally, research methodology, research design, data collection techniques, and as well as the tool for data analyses, is the next chapter to be discussed.

CHAPTER THREE

STUDY AREA AND METHODOLOGY

3.1 Introduction

This section basically discussed the study area and the methodology. The research philosophy, research design, methods of data collection, analysis, and ethical issues. The descriptive research design was used in order to describe the phenomenon of risk perception and safety measures adopted in motor taxi usage. The mixed-method approach was used, making use of both qualitative and quantitative data sourced from key informants and a survey, respectively. Hence, the detailed information was to ascertain the authenticity of the research work since mixed-method complement each other in terms of validity (Teye, 2002). Concerning the objectives stated in the previous chapter, data obtained from the field survey (questionnaires) was used to address objective 1 and 2, and a checklist for objective 3. To compare the level of risk perception within the two study areas, Chi-square, cross-tabulation, and regression were used to measure and establish the differences and make a prediction.

3.2 Location and size

Accra and Ashaiman are located in the Greater Accra Region, the smallest of the 10 administrative regions of Ghana. In terms of area, the region occupies a total land area of 3,245 square kilometres or 1.4 % of the total land area of Ghana. The Constitution of Ghana, according to Article 35 (d), obliged the state ‘to take appropriate measures to ensure decentralisation in administrative and financial machinery of government and people opportunities to participate in decision-making at all levels of national life and government’. The Constitution also stipulates that a minimum of 5% of national cake to be paid to various district assemblies for development purposes.

Other important legislation that supports (demarcation) decentralisation includes the Local Government Act of 1993 and Common Fund of the District Assemblies. The principal local government unit is called the District, with these being distinct. According to the size of the population, we have the metropolitan assemblies (population over 250,000), municipal assemblies (population over 95,000) and assemblies District assemblies that cover rural and urban communities which cover larger geographical areas (Agyemang, 2009).

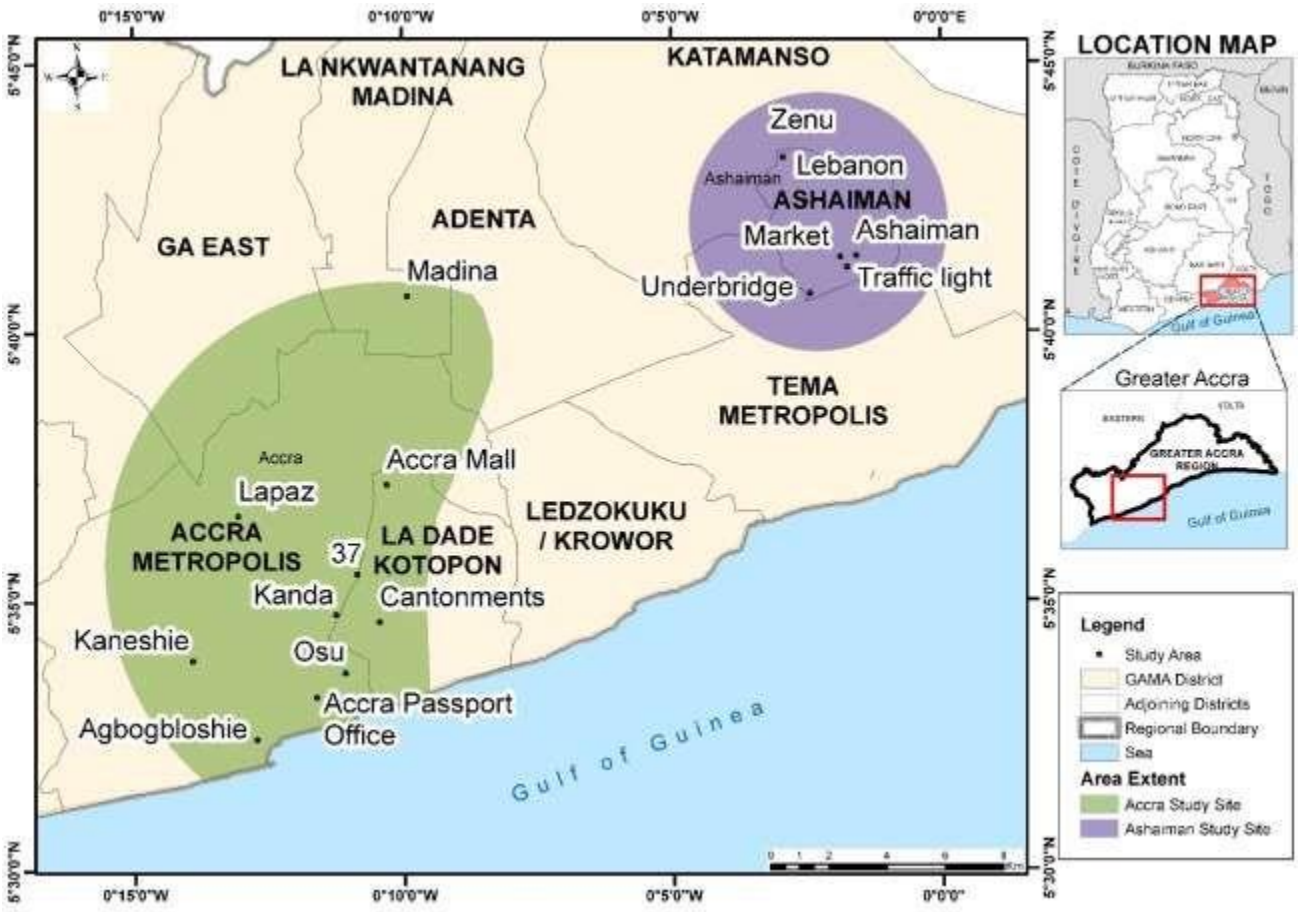
Subsequently, the Greater Accra Metropolitan Area (GAMA) is likewise established as a nucleus of Accra, or Accra Metropolis (Songsore, 2004; Oduro et al., 2015). GAMA is located at 5°33' north and 0°13 west. About this study, concentration is on Accra and Ashaiman. The study areas were within the Greater Accra region, and the region shares boundaries with the Central region to the west, Eastern region to the north, to the east by the Volta region and to the south, by the Atlantic Ocean.

However, before the capital of the then Gold Coast was moved from Cape Coast to Accra in 1877, the entire Greater Accra Region within which the city is located was predominantly rural, consisting of fishing and farming settlements (Songsore et al., 2009; Parker, 2000). But now, Accra which is the administrative and economic centre of the country is also the most populous city in Ghana (In this study, GAMA is operationalised to mean "Accra'' which encompass the contiguous and functional urban areas bordered to the west by Kaneshie, east by Cantonment and northward including areas such as Lapaz and Madina). Ashaiman municipality is an urban settlement spurred by economic activities (trading) as well as budding suburbs for middle-class income residents (Grant and Yankson, 2003; Owusu, 2013). The study adopted this operational definition because

Okada being a new mode of transportation has been noted to be shift and not hidden by confession (Oteng-Ababio and Agyemang 2012). The operators commute within and between the various municipalities without any hindrance.

Due to their roles as major economic city and urban centre respectively, Accra and Ashaiman has residents who are mostly multilingual and can therefore speak a number of local dialects/languages and also the national language. The Greater Accra Metropolitan Area has a population of 4 million (GSS, 2017) whereas Accra has a population of 1,964,264 and that of Ashaiman is 202,932. (GSS, 2017; United Nations World Population Prospects, 2017).

Figure 3.1 Map of GAMA, highlighting the study area of Accra and Ashaiman.



Source: Authors' construct, 2018.

3.3 Climate

GAMA, the area is in the dry equatorial climatic zone, which is part of the Savannah zone with a dry season in winter and rainy seasons in summer due to the African monsoon. According to the Meteorological Services Department, the study area experiences a double maxima regime of rainfall. The main and first season starts in May and ends in the middle of July while the minor or second season begins in the middle of August and ends in October. Rain is rarely prolonged, and the average duration of rain is between 2 and 5 hours. Rain persisting for over 12 hours is very uncommon. With an average yearly rainfall of about 730mm, the location of GAMA receives the lowest amount of rain in the country. The rains usually fall in intensive short storms and give rise to local flooding where drainage channels are either non- existent or are clogged. This also causes flooding on the major streets in the study area (happens yearly) and this inhibits mobility during such periods. Within the study area, there is a slight variation in temperature throughout the year. The average monthly temperature varies from 24.7°C in August (the coolest) to 33°C in March (the hottest) with a yearly average of 26.8°C (Mantey and Tagoe, 2013).

Since the region is close to the equator, the daylight hours are practically uniform throughout the year. Generally, relative humidity is high, varying from 65% in the mid-afternoon to 95% at night. The maximum wind speed record in the study area is 107.4 km/hr (58 knots), where 1Knot=1 nautical mile of 1.852 km (Hotor, 2016). Strong winds associated with thunderstorm activity often cause damage to property by removing roofing materials, collapsing of billboards, shops and uprooting older and weaker trees. During the rainy season, Okada operators are scarce, and their activity gets halted in a way due to the inclement weather. Also, due to the design of motorbikes, riders are quick to pack off the road as soon as it starts to rain. The few riders who opt to operate charge exorbitant fares at the expense of frustrated pillion riders who wish to get to their

destination on time especially when the clouds are gathering.

3.4 Transport System in Ghana

The state dominates the provision of infrastructure and operations in all modes of transport in Ghana. Except in the case of road transport, the public sector has been heavily involved in operations in all modes and has a monopoly over rail and inland water transport. The country has an airline network that connects Ghana to Africa and the rest of the world. Some major international carriers regularly fly to Kotoka International Airport (KIA) in Accra, the main entry point to Ghana by air. Locally, there are few domestic flights companies such as Africa World Airlines, Passion Air and others which help convey travellers within the country.

Ghana is in an advantageous position, as her seaports serve the maritime needs of landlocked countries to the north of the country. Some needs of people living along the stretch of the Volta Lake are also served by the Volta Lake inland transport system. The Volta Lake was created in the early 1960s by building a dam at Akosombo and flooding the long valley of the River Volta

The mode of transportation network most used in Ghana is the road sector, although other modes of transportation such as air, rail, marine and inland water transport equally exist as discussed above (Ghana Statistical Service, 2002: Nuworsoo, 2006). Road transport is essential to the Ghanaian economy. The government ministry accountable for transport issues in the country is the Ministry of Roads and Transport. From the Ministry of Roads and Transport, Ghana's road transport infrastructure is estimated to be 63,122km of road network connecting the entire country. The network consists of 12,786km of trunk roads, 40,671km of feeder roads and 9,764km of urban roads. As of 2011, the road network had increased from the above figures to 13,367km of trunk roads, 42,100km of feeder roads and 12,600km of urban roads. The ministry works in collaboration with other state institutions to manage the affairs of safety and the maintenance of

road networks.

For example, the Ghana Highway Authority (GHA), Department of Urban Roads and the Department of Feeder Roads are responsible for the construction and maintenance of trunk roads, urban roads and secondary roads leading to rural areas respectively whilst the DVLA and NRSC are responsible for the registration of all motor vehicles and the education of road users for a high road safety profile. With much attention given to the road sector, it shows how vital the industry is to the government and the citizenry.

It is projected that about 2.2 million passengers are moved by the road sector daily, and about 122 million tons of freight move annually (NRSC, 2008). Accra, the nation's capital, has the largest roads networks, and most of the registered vehicles in the country (Addo, 2002; Agyemang, 2009; DVLA, 2010). Due to this and other factors, the incidence of road crashes and congestion in the city has been increasing every year (NRSC, 2016). Ghana's public transport sector has, for a long time, been dominated by shared taxis and low- capacity mini-buses locally known as *trotros* [which mostly do not accommodate more than 23 passengers]. The scope of public transportation services in some places in the capital city (Accra) has expanded to include motorcycle taxi services (Oteng-Ababio, 2011). It has been observed that, in recent times the introduction of app-based ride-hailing services such as Taxify and Uber is largely patronised by a section of people in the society.

The rapid increase in the ownership of cars and other factors has contributed to the hectic traffic jam (Abane, 1993; Murray et al., 1998; Kwakye and Fouracre, 1998). To improve on transport services in the region, the government introduced a Bus Rapid Transit service called "Ayalolo" and the Metro Mass Transport Ltd (MMT) in October 2003 (Agyemang, 2009), which the author believes to be relatively cheaper and effective compared to other private transport services.

Similarly, private transport operators like the VIP, VVIP, Frimp Transport, O.A Transport, and others together with the State Transport Corporation (STC) have provided intercity transport services.

The effort by Government of Ghana through the Ministry of Transportation has initiated a couple of rapid bus transit services in line with the agenda to provide an efficient urban mass transport system through the use of buses to ease the congestion; faced by residents. However, commuters are not satisfied with the services these transport operators offer. Unfortunately, the failure of state institutions to plan for tackling these trials in the transportation sector has created unprecedented traffic problems hence the increasing use of Okada as an alternative means of transport (Oteng-Ababio and Agyemang, 2012).

3.4.1 The introduction of Okada

Ghana and Nigeria have a long-standing relationship, and for the most part, they learn and want to know what happens in each other's country. These two countries share experiences from political, economic, social development programs and policies not overlooking the transportation systems. Okada was the name of a village from which an outdated Okada airline merchant (Gabriel Ebginedion) hailed from. The origin of the name Okada seems to stem from the now-defunct "Okada Airline'' in Nigeria (Oteng-Ababio and Agyemang, 2012). The adoption of the name for motorcycle taxis seems to be an attempt to brand them as an efficient means of transport (Nehi, 2012). The heavy traffic within Accra and its consequences have increased travel time (Finn and Walters, 2010) and has led to the commercialisation of motorcycle taxi as a solution for pillion riders who want to get to their destination on time. Apparently, it was like flying via Okada airline, hence its name.

The story behind the origination of Okada in Nigeria is no different from that of the case of Ghana. However, it is believed that Okada emerged to Ghana through its eastern corridor to be specific Aflao (Oteng-Ababio and Agyemang, 2012; Zuure and Yiboe, 2017). In Ghana, it started in the early 1990s where young riders drop-off pillion riders at their doorsteps for a token (Victor Tandoh, personal communication, 18th April 2018; Oteng-Ababio and Agyemang, 2012). The popularisation and commercialisation of Okada provided an opportunity for unemployed urban youth (18 to 30 years) to engage in the Okada business and earn a living (Oteng-Ababio and Agyemang, 2012). The use of Okada is now ubiquitous and has come to stay due to its demand and supply.

3.5 Road Traffic and Transportation

The traffic and transportation system within GAMA is based mainly on road and rail network (GSS, 2013). There is no internal air or water transport system in the area. GAMA has relatively good road connections with the rest of the country. Most of the roads in GAMA are two-lane single carriageway with a few exceptions. The width of most pavements on the arterial road network is narrow. Taking GAMA current political and economic state and future growth potential into perspective, an effective multi-modal transportation system, which includes both motorised and non-motorised means of transport, is vital to support continuous mobility and accessibility, as well as economic development. Initially, the transport framework throughout present-day Ghana and GAMA was laid out by the then British colonial policy (Songsore, 2003). This policy, prioritised transport investments to the development of industrial and port areas especially in the coastal areas of British territories. The road network generally consisted of a major trunk road from the Central Business District (CBD), leading out of the city to the peripheries, driving development in the industrial and port area (Adarkwa, 2012). As a result of this, economic development led to the

centripetal and the concentric road network structure of Ghanaian cities, with a concentration of high-density activity at the core, but limited road space which constraints movement within the areas (Parker, 2000). This road network structure is illustrated in GAMA, where a series of radial routes meet at the city's CBD. The lack of east-west passageways is a major deficit in this structure (Tamakloe, 1993; Addo, 2002).

This excludes vehicles registered with the security services such as the Ghana Prison Service, the Ghana Armed Forces and Police Service (DVLA, 2016). Though the total number of vehicles is relatively low for the country, it, however, faces serious challenges with traffic management on the roads hence the introduction of Okada into the system.

3.6 Economy

The economic hub of the Greater Accra region lies within GAMA. The area has several financial institutions, manufacturing industries, health institutions, oil companies, telecommunication, education, tourism, and other critical state-owned establishments. The presence of these institutions continues to attract people from all parts of the country and beyond to transact various businesses and seek employment as well. Most residents within the area are engaged in all the sectors of the economy (primary, secondary and tertiary).

The occupational structure of the GAMA shows that 42.0 % of the economically active population is engaged in sales and service occupations, while professional, technical and related workers comprise 10.8 %. The three largest occupational groups among males are production, transport operators and related workers (29.6%), sales workers (19.4%), and clerical and related workers (14.4%), compared with 42.0 per cent of females in sales occupation, 19.5 per cent in production, transport and equipment, and 13.9 per cent in service occupations. The industrial sector is dominated by wholesale and retail trade (30.4%) and manufacturing (16.7%) (GSS, 2012). A little

above 70% of the population of GAMA representing persons 15 years and older are economically active, and about 93% of that population is employed. However, more than half of the economically active population in the region is self-employed with employees, while a third (32.6%) is employees. A more significant proportion of females (62.6%) than males (41.6%) are self-employed without employees, implying that males are 1.5 times more likely than females to be employees. The private informal sector, which employs 6 out of every 10 economically active persons, plays a leading role in the economy of the area.

With sex, 69% of females aged 15 years and older were economically active with 93% of them employed. Nearly 72% of the males were economically active, and 93% of them were also employed (GSS, 2012). More males (80%) aged between 15 and 19 years than their female counterparts (76%) were economically not active. This might be due to the fact that more males than females of that age group were engaged in full-time education in the study area (GSS, 2010). The private informal sector is the main avenue for employment (74%), followed by the formal private industry (17%), indicating that the private informal and formal sectors (91%) were the major employers in the area. In the private informal sector, a higher proportion of females (83%) than males (65%) were employed.

This high proportion of working population within the informal sector could be due to inadequate employment opportunities in the formal sector coupled with the fact that some people have low education and professional training which do not meet the requisite qualifications for employment in the formal sector, particularly females (Tanle and Awusabo-Asare, 2007). Moreover, the proportion of males (9.8%) employed in the public sector is higher than that of females (5.9%) and could be attributed to the fact that the general illiteracy level is higher among females than males in Ghana (GSS, 2012). The economic profile of GAMA further connotes a very mobile population

engaged in both formal and informal economic activities which thrive on transport, specifically public transport, hence, measures in making public transport efficiency are key to increased economic outputs and growth.

3.7 Demographic characteristics of the Study Area

Demographic features, such as sex and age structure, population size density and growth, are considered as essential parameters that must be taken into consideration in transportation studies and analysis.

3.7.1 Age-Sex Structure

Ninety-eight (98%) of Ghanaians are Black Africans, although the country is very multi-ethnic. The age structure of GAMA is a youthful one with a more significant proportion of the population under 15 years and a small proportion of elderly persons (65 years and older) (GSS, 2012). The effects of high fertility basically shape the age structure of the area population and decreasing the mortality rate. The region's population had grown from 429,688 in 1960 to 3,351,287 in 2010. The highest proportion of residents fall within the 20-24 age limit and are followed by those in the 25- 29 age group. These high youthful numbers could be attributed to the inflow of migrants to the area mostly for administrative, commercial, education and employment purposes. Generally, there are more females than males in almost all the age groups which conform to other districts in the region. This is in line with the fact that more than half of the total population of Ghana is comprised of females (GSS, 2012). The teeming increasing population of the youth is worth acknowledging in terms of their very physical mobility patterns of either school, work or leisure as compared to the aged population who are less mobile. Considering the backdrop of transport infrastructure which is not being increased in tandem with a growing population, traffic congestions, and other traffic-related challenges have emerged and

it is likely for the young males to take advantage and engage in Okada operations to satisfy commuters who are in haste to get to their destination on time.

3.7.2 Population Size and Distribution

The 2010 Population and Housing Census revealed the total population of the area was 1,040,618. Females constitute 51.9% while the males were 48.1%. In reference to the sex ratio, for every 100 females, there were about 93 males within the area. Also, the sex ratio of the GAMA is lower than the national ratio of 95.2 (GSS, 2012). This could be attributed to male mortality which is higher than that of females in the area or male out-migration from the area.

The total dependency ratio refers to the ratio of persons in the dependent ages to those in the economically productive ages in a population. The age-dependent population of the GAMA is represented by the age group 0-14 (children) and 65 and above (elderly) in the working-age population (15-64). The total dependency ratio of the Metropolis is 48.5, which is lower than the regional ratio of (53.4). This implies that there are fewer non-working people being cared for by the working-age population in the Metropolis than in the region (GSS, 2012).

Census data show that almost half of Accra's population growth between 1960 and 2010 occurred outside the official boundaries of Accra. Accra's share of GAMA's overall population growth was as much as 70% during the 1960-1970 intercensal period before declining to 40% during the 2000-2010 intercensal period. Rapid population growth on the fringes of Accra has led to a corresponding increase in demand for land to build homes, infrastructure and employment centres to serve the swelling urban population. This has, in turn, led to the engulfment of several peri-urban communities that surround the city, leading to rapid changes in the physical and socio-economic characteristics of those communities (Yankson et al., 2005).

Table 3.1: Distribution of population growth in GAMA

	1960-70	1970-84	1984-00	2000-2010	1960-2010
Total Growth (Absolute)	429,688	660,431	1,220,550	1,040,618	3,351,287
Share of Growth (%)	70.1	46.7	55.0	40.1	50.7
Share of Growth Occurring Outside Accra (%)	29.9	53.3	45.0	59.9	49.3

Source: Oduro et al., 2015. (Based on census data from 1960 to 2010)

The population of the GAMA is ever increasing and with about half a million commuters travelling into the city to undertake professional, administrative, educational, commercial and industrial activities (World Bank, 2016) which thrive on movement, adequate transport provision cannot be overemphasized.

3.8 Research Methodology

This section of the study deals with a description of the methodological approaches applied in the study. Research methodology defines what the activity of research is, how to proceed, how to measure progress, and what constitutes its success (Yin, 2003). There are different methodologies

used in various types of research considering the philosophy of the research, the methods of data collection, the design of the research and the type of data collected as well as the methods of data analysis. In this section, an attempt is made to justify the adoption and use of the methodological approaches used in the study.

3.9 Philosophical Consideration/Underpinning

Philosophical consideration is a very vital aspect of every research. The philosophical worldview of research forms the fundamental path and gives a general idea of how a researcher perceives the world. This view is guiding the problem investigated therein about the world that the researcher possesses. Creswell (2009) explained the worldview or paradigm connotes as a general orientation about the world and the nature of research that a researcher holds. In research, there are two broad methodologies philosophical consideration; thus; epistemology and ontology. The epistemological perspective of any research concerns itself with questions of what is or what should be regarded as acceptable knowledge (Babbie, 2010).

The ontological point of view, on the other hand, represents what exists as people perceive that they exist in the world in which they live, instead of deriving the meaning of their environment (Babbie, 2010). These two opinions have helped a lot to define the path of inquiry that a researcher uses to investigate the world. There are several philosophical views, such as post-positivism, constructivism, and promotion/participation. However, this study adopts the philosophy of pragmatism.

Pragmatism is a philosophical movement that includes those who claim that an ideology or proposition is right if it works satisfactorily, that the meaning of a proposition is to be found in the practical consequences of accepting it, and that unpractical ideas are to be rejected (Horkheimer,

1972). However, generally, pragmatic theories of truth focus on the connection between truth and epistemic practices, particularly research and affirmation practices (Dunlosky et al., 2013). Depending on the particular pragmatic theory, true affirmations can be those that are useful to believe, that is the result of an investigation or inquiry, that have withstood a continuous examination, that meet a standard of guaranteed assertiveness, or that represent norms of assertoric discourse. Like other theories of truth (coherence and deflationary theories), pragmatism theories of truth are often presented as an alternative to correspondence theories of truth (Capps, 2019). Unlike correspondence theories, which tend to view truth as a static relationship between a bearer of truth and a truth-maker, pragmatic theories of truth tend to see truth as a function of the practices that people perform and the commitments that people make when solving problems, making affirmations or carrying out scientific research (Walker, 2017).

Pragmatism theories of truth have the effect of diverting attention from what makes a claim true and what people want to say or do by describing a claim as true. Although sharing many of the impulses behind the deflationary theories of truth (in particular, the idea that truth is not a substantial property), pragmatic theories also tend to perceive truth as more than a useful tool for making generalisations (Giere, 2010). Pragmatic theories of truth emphasise the broader practical and performative dimensions of the discourse of truth, emphasising the role that truth plays in shaping certain types of discourse. These practical dimensions, according to pragmatic theories, are essential to understand the concept of truth.

According to Creswell (2009), “pragmatism arises out of the actions, situations, and consequences rather than the antecedent conditions in post-positivism.” Proponents of this philosophy agree that instead of focusing on the methods, researchers rather emphasise the research problem and use all available approaches to understanding the problem. As a philosophy underpinning mixed-method

studies, Morgan (2007), convey its importance in directing attention on the research problem in social science and then using diverse approaches to obtain knowledge about the problem (Creswell, 2006).

The current study seeks to understand how Okada riders perceive risk using the pragmatic lens. The study takes into consideration the dynamics of how riders perceive risk, the use of safety gears by riders, the perception of the general public about the use of Okada as a means of transport and the role of state institutions in maintaining road safety measures. Pragmatism as a philosophical worldview offers a better platform for the study as it allows the use of mixed-method techniques and procedures coupled with specific theory and frameworks to unravel the complex issue investigated (Creswell, 2006).

3.10 Research Design (Qualitative Versus Quantitative Approaches [Mixed method])

Research designs refer to the plans and procedures used in research that cover the decision from vast assumptions to detailed methods of data collection and analysis (Creswell, 2009). The research design should be the fixed point of reference and guide throughout the entire research. The study adopted a mixed-method approach in order to obtain a comprehensive understanding of the issues under examination.

Johnson and Onwuegbuzie, (2004) define mixed methods research as the combination of elements from qualitative and quantitative research approaches: the use of viewpoints, data collections, analysis, inference techniques for breadth and depth of understanding and corroboration. The use of a mixed-method approach brings about complementarity with the idea of seeking elaboration, enhancement, illustration, and clarification of the results from one method with results from the other method. Again, the mixed research approach is preferred as it combines the strengths of both research designs, therefore, reducing the weakness associated with any particular research design

(Davies, 2007; Bryman, 2012).

The quantitative approach is particularly useful as it makes it possible to solicit and input views and responses from a relatively more extensive pool of respondents (Johnson and Onwuegbuzie, 2004; Nardi, 2018). This relatively large number of respondents goes a long way to increase the representativeness of the sample responses for the study population. The quantitative approach also makes the objective linkage or relationship between variables as the relationship can be revealed through statistical tests such as chi-square analyses, ANOVA, regression, among others. With results obtained from the corresponding statistical significance of the test (Yaro, 2010).

However, the quantitative approach to research is plagued by the "shallowness" of the data. This is because, although the study might be able or not to show trends or patterns, the researcher cannot state emphatically the reason(s) for statistically observed trends. As such, the qualitative research approach, which is largely based on the grounded theory, allows for a more 'in-depth' data collection and understanding of trends observed (Teye, 2002).

In this study, the close-ended questionnaires were administered to the operators of Okada to elicit information about various aspects of their activities. However, in-depth interviews (qualitative approach) were conducted among selected operators to reveal their reasons and possibly explain observed trends in the quantitative data (Sommer and Sommer, 1997). Furthermore, there was a need for interviews to be carried among some key informants as their occupation/work made them custodians of crucial information relevant to the study. Again, these key informants provided new data for the study while giving the researcher a different perspective on the operation of the Okada from various the standpoint of various stakeholders such as the Police Motor Traffic and Transport Department (MTTD), National Road Safety Commission (NRSC), Driver and Vehicle Licensing Authority (DVLA), the Parliamentary Select Committee on Transport and Okada leaders.

Qualitative tends to be time and financially consuming. Hence researchers are mostly not able to conduct studies entirely based on it. Also, understanding, analysis, and conclusion made from qualitative work tend to be criticised as it is biased towards the interpretation of the researcher who gathered and analysed the data.

3.11 Target Population and Sampling

The use of snowballing sampling technique resulted in the declaration of a sample of 200 respondents. Snowball sampling (also known as chain-referral sampling) is a non-probability sampling method used when characteristics to be possessed by samples are rare and difficult to find (Guest, 2014). The choice of snowballing sampling for the study was because Okada operators are not readily recognisable. Further, the illegal nature of the Okada operation makes it difficult for a rider to admit he is one openly. Again, there are no documented records on Okada operators. Therefore, snowballing sampling was the most appropriate method to use to collect the data.

The 200 respondents were selected based on the population of the two urban centres. Okada operations are still considered illegal. As such, finding the exact number of operators within the study area was very difficult. However, initial discussion with the operators revealed there were several turfs (stations) within the study area. The turfs included in the study area were those that were revealed to the researcher during the initial studies. Therefore, the only means to determine the size of respondents at various turfs was based on informal discussion/verbal approximation by Okada operators at each turf. Leaders (station masters) gave a rough estimate of operators within a particular turf. Information were collected from riders of sixteen (16) different turfs (see Figure 3.1). These turfs were selected based on referral by Okada riders during the reconnaissance survey. However, these turfs were chosen due to notorious identified traffic congestion in the respective localities where vehicular movements are always at a snail pace during peak hours and, as such,

Okada services are demanding where it appears to be filling a vacuum. The discussion provided an understanding of the risk, knowledge, attitude, practices, safety measures, collective perception, and images pertaining to motor taxi transport.

3.12 Data Sources

3.12.1 Primary Data

Against the backdrop of providing a comprehensive understanding of the issues examined, primary data sources were relied on. The primary data for this study, therefore, were the quantitative and qualitative data collected via the use of the questionnaire and in-depth interviews respectively. Primary data refers to data that has been collected from first-hand experience (Creswell, 2009). This data was obtained by administering a semi-structured closed-ended questionnaire which helped to gather first-hand information from the respondents and at a relatively low cost (Hatakka et al., 1997; Yaro 2010). The surveys were carried out with the help of field assistants (data collectors) who were given adequate briefings in order to enable them to conduct the survey efficiently.

3.12.1.1 *Questionnaire Survey*

The questionnaires were administered at 16 turfs within the study area. These locations were identified during the reconnaissance survey where inquiries were made with individuals in the Okada business. After these locations were identified, personal visits were made to these places and preliminary interviews were conducted with leaders there. The purpose of these preliminary visits was to ascertain the number of Okada riders in these turfs. From the interviews, a total of about 1200 Okada riders were approximated in these 16 turfs. To get the sample size out of this population, the Krejcie and Morgan (1970) formula for determining sample size was used. This is illustrated in the equation below.

$S = x^2NP(1-P) / d^2(N-1) + x^2(1-P)$

Where;

S = the required sample size for the study.

X^2 = the value of chi-square for one degree of freedom at a confidence interval of 5% = 3.841

N = the target population which is 1200 Okada riders

P = the target population proportion which is assumed to be 0.50 since this will provide the maximum sample size

D = degree of accuracy or precision which is also expressed as 0.05

Therefore:

$$S = \frac{x^2\,NP(1-P)}{d^2\,(N-1) + x^2\,P\,(1-P)}$$

$$S = \frac{3.841 \times 0.5 \times 1200(1-0.5)}{(0.05)^2\,(1200-1) + (3.841)\,(0.5)\,(1-0.5)}$$

$$S = \frac{1152.3}{3.95775}$$

$$S = 291$$

The calculated sample figure using the formula was 291 Okada riders. However, there were some challenges encountered during the survey, which called for an adjustment to the total sample used to 200 respondents. Some of the challenges encountered include the unwillingness of some Okada riders to grant interviews because they perceived it was not necessary. Also, the nature of the research required a limited timeframe to complete; thus, longer periods could not be spent on the

field. There were some incomplete questionnaires due to some Okada riders leaving in the middle of interviews because they got pillion riders and this prolong the time spent in collecting data. All these contributed to the reduction in the actual sample figure to 200. Table 3.1 illustrates the estimate population of riders and the total sub-sample obtained for the study.

However, given the geographical space and general population of the two study areas, Accra is bigger than Ashaiman. Thus 150 and 50 questionnaires were assigned to each study area, respectively**.** Riders who were found packed at various turfs in wait for pillion riders were interviewed. The questionnaire sought to find the demographic characteristics, risk perception, and safety adherence of Okada riders.

Within the context of the study, cross-sectional observations were made using the observational checklist. A checklist was generated to cross-check the wearing of the helmet and other protective gears through observation, as dictated by the LI 2180, to ensure road safety. All gears prescribed by the legislative instrument were incorporated into the checklist. They are; helmets, safety boots, gloves, safety jacket, shoulder pad, elbow pad, and knee pad. The observation enabled the researcher to check if riders adhered to the use of safety gears. Nardi (2018) opined that an observation survey is the best method to measure the result of interest, that is, in this case the use of the helmet and other protective gears. The observational surveys are more precise since the memory or the bias of social desirability is not present.

The observation survey was done in two hours on days of observation. The morning session began at 7 a.m. and ended at 8 a.m., and later in the day from 4:30 pm to 5:30 pm. To reduce the possibility of errors in recording, all manual data were inputted at 3-minute intervals. For the observation, motorcycles leaving the known turfs with pillion riders were assumed to be Okada

operators hence, were observed as such using the observational checklist. The frequency of usage of safety gears among the sample found was used as a measure of adherence. In all, a total of 35 riders were observed.

Table 3.2: Target population for the questionnaire's surveys.

Study Turfs	Sampled Population of Okada operators	Sample Size used for interview
Madina (Zongo Junction)	90	15
Lapaz (Las Palmas)	90	15
Accra Mall (overhead footbridge and aroundabout)	90	15
Kwame Nkrumah Circle (dubai, VIP station and odo rice traffic light)	90	15
Accra Passport office	90	15
Agbogbloshie (Market)	90	15
Kaneshie (Market)	90	15
Cantonment (Police hospital and Dankwa roundabout)	72	12
37 (Bus stops)	72	12
Osu (Oxford street)	66	11
Kanda (Mobile bus stop)	60	10
Ashaiman Traffic light	90	15
Ashaiman main station	90	15
Ashaiman underbridge	60	10
Ashaiman lebanon (Lorry station)	30	5
Zenu main station	30	5
TOTAL	**1,200**	**200**

Source: Fieldwork, 2018.

3.12.1.2 Key informant interviews and Interviews

The interview guide was in two forms; those for the road transport stakeholders selected and one for the various respondents chosen for the qualitative facet of the study. Nine (9) key informant interviews were carried out to elicit information from necessary stakeholders like the Police MTTD, DVLA, NRSC, Road Safety Ambassador and the Chairman of Parliamentary Select Committee on Transport as well as Okada operators (station masters): to ascertain their perceptions, legal issues, as well as the future prospects of the operation of Okada. According to Boyce and Neale (2006), in-depth interviews provide much more detailed information than what is available through other data collection methods, such as surveys. The intentions behind interviews are to elicit the views and opinions of people who are in charge or are experts in particular subjects or fields (Creswell, 2009). Additional eight (8) interviews were conducted for other road users such as hawkers, pedestrians, and drivers which focused mainly on their motivation, user satisfaction, and general attitudes of Okada operators (see Table 3.2). The selection of interviewees for other road users was based on gender balance in order to obtain different views from opposite sexes. All these interviews were conducted at their places of business. Interviews approximately lasted between 30 to 45 minutes and were conducted in Twi, Fante, Pidgin English, and English language depending on the language of choice of the interviewee. Semi-structured interviews were carried out using an interview guide and a recording device to gather various views.

Table 3.3: Overview of qualitative data sourced through key informants' interviews and interviews

Institutions/Stakeholders	Position/Status	Number of Interview(s)
Police MTTD	Public Relation Officer	1
DVLA	Director, Vehicle Registration	1
NRSC	Public Relation Officer	1
Road Safety Ambassador	Ambassador	1
Parliamentary Select Committee on Transport	Chairman	1
Okada Leaders	Station masters	4
Hawkers	Informal workers	2
Pedestrians	Student/Private formal worker	2
Private drivers	Public worker/formal worker	2
Commercial drivers	Informal workers	2
TOTAL		**17**

Source:Fieldwork, 2018.

3.12.2 Secondary Data

Secondary sources of data refer to already existing data. According to Johnston et al., (2000) secondary data is the type of data which is used for a research work other than that of which was not originally gathered or collected. Secondary data sourced for this study included existing literature on the subject, written reports, journals, news articles, policy frameworks and regular reports from shareholder institutions like the DVLA, NRSC, and the Ministry of Transport, as well as a medical report. The annual reports of all these institutions were perused to discover the annual

rate of occurrence of phenomena such as accidents. The advantage of secondary data is that it allows the researcher to have a basis for filling gaps in existing knowledge. However, it may be difficult for a researcher to adopt and adapt some secondary data, as they may be irrelevant or inappropriate for a particular topic of interest for research.

3.13 Procedure for Data Processing and Analysis

The completed questionnaires were coded, entered, and analysed using the Statistical Package for Social Sciences (SPSS) Version 23. Descriptive statistics, such as frequencies and percentages, were used to analyse categorical data. Results of the analysis were represented in words, statements and tables. The demographic characteristics of Okada riders were analysed using basic measures of central tendencies. Chi-square test of association was used to determine and establish the statistical significance relationships if any between responses and the two study areas. A p-value of < 0.05 was considered statistically significant. An index of all questions related to the perception of risk was developed as an aggregate score of risk perception and safety adherence by riders (Question no. 1-31, see Appendix C).

Based on a total score of 69, respondents were either considered to have high or low-risk perception. Okada operators who scored ≥ 39 were considered to have a high-risk perception, and those who scored < 39 marks were considered to have low-risk perception. Regression test was used to measure relationship between risk perception variable. Also, a test of the hypothesis was conducted to determine if the location of an Okada rider has any relationship with the perception of risk of such an individual. Also, for the study, risk perception questions asked were categorized into three different sections, thus; general risk perception, safety adherence, and the legal issues of Okada operations. From the initial interview with key informants, it was realised that these were the three particular categories of risk that riders faced. As such, these categories were incorporated

into the research instruments.

Response obtained from the in-depth interviews were transcribed and analyzed thematically using content analysis. Content analysis is explained as a qualitative research technique used to make replicable and valid inferences by interpreting and coding textual material systematically, i.e oral communication and document (Graneheim and Lundman, 2004; Neuendorf, 2016). The analyzed data was then cross-referenced to respective portions of the survey to give insights and different perspectives on the same issue. This proved very useful as it gave clarity and understanding to some patterns observed in the survey. The qualitative data also proved useful in establishing a linkage between phenomena observed in the study and existing literature.

3.14 Pilot Study

Prior to the main study, a pilot or preliminary study was conducted with 20 participants in the Central Business District of Accra. Accra was chosen for the pilot study because of its heterogeneous characteristics, its diversified economy and, its highest record of road crashes in recent times (Grant and Yankson, 2003; Afukaah et al., 2003; NRSC, 2013) and also the widespread use and operation of Okada in the area (Oteng-Ababio and Agyemang, 2015; Victor Tandoh, personal communication, 18th April 2018). The purpose of the pilot study was to identify the problems associated with the survey instruments (it's content and the design, administration process, understanding, and estimated time to complete each questionnaire) (Heppner and Heppner, 2004). The exercise brought more understanding, clarity, and amendment in the questionnaire making it more reliable, which led to a smooth and successful data collection exercise. It also served as a springboard for the main survey as prospective respondents and Okada turfs were identified from the pilot study.

3.15 Ethical Considerations

This study was conducted with approval from the Department of Geography and Resource Development, University of Ghana, Legon. Paramount to every research is the ethical considerations. Ethical considerations are moral standards that the researcher should consider in all research methods and stages of the research design (Tracy, 2010). This means that the research must be planned to comply with ethical consideration and ethical acceptability (Israel and Hay, 2006). According to Israel and Hay (2006), the protection of research participants should be paramount to the researcher. This research took into consideration several ethical issues such as;

3.15.1 Consent

Verbal informed consent was obtained from each respondent and was sufficient to give the interviewer authorisation to proceed with the administration of the question; thus, only after the interviewer had explained the rationale for the study, and received confirmation from participants, then the questionnaire was administered. Besides, a courtesy call was made to some Okada station masters selected to take part in the study before the study was instigated.

3.15.2 Confidentiality

Respondents were informed that any information obtained during the study was going to be used solely for academic purposes. Before the commencement of the interview, participants were assured of the confidentiality of responses provided, and data collected were only used for the analysis of the study. They were also assured that any information given would not be used to identify them.

3.15.3 Freedom to Withdraw

Participants were made to understand that taking part in this study was voluntary. Therefore, they could refuse participation or pull out without ramifications anytime. Many of such participants

who were encountered and their decision were respected.

3.16 Limitations of the study

Gaining access to state officials for data and materials was very hectic and tedious, and it caused a time setback for this study. Upon several visits to the DVLA officials, the needed information was however obtained. On the part of the respondents, some Okada riders were fed-up with granting interviews to various individuals and media houses without experiencing any significant improvement in their work. Further discussions and explanations were given to these riders about the academic nature of the study and after that the needed responses were provided.

3.17 Chapter summary

This chapter first discussed the philosophical consideration, research design, sample procedure, data sources, and the method for analysis. The study adopted the mixed methods approach since each method complemented the other. Quantitative data was obtained through survey questionnaires while qualitative data was obtained from the key informant interviews and observation. Secondary sources of information, particularly annual reports, policy framework, and regular reports were sought from state agencies such as DVLA, Police MTTD, and NRSC. Views from Okada leaders were also incorporated into the study. Ethical issues and how they were adhered to in this study were also discussed. The limitation of the study was equally addressed in the section.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the results of data obtained from the respondents (200) within the two selected study areas. The focus of this chapter is the presentation of research findings from the fieldwork. The findings of the study are presented according to the objectives and hypotheses outlined in the study. The presentation begins with an overview of the demographic characteristics of respondents, general risk perception of Okada riders, and safety adherence are discussed subsequently. This chapter also presents hypotheses findings and discusses the outcome of the observation study. The perspective of stakeholders and the views of other road users were captured thematically using the qualitative approach buttressing the quantitative results.

Objective 1:

4.2 Socio-demographic characteristics of Okada operators

The socio-demographic characteristics of respondents, such as sex, age, educational level, marital status, ethnicity, bike ownership, and income level, are discussed in Table 4.1. The socio-demographic characteristics are considered essential parameters that are taken into consideration which sought to explore if and how these variables influence the risk perception of Okada operators.

Table 4.1: Socio-demographic characteristics of sampled Okada riders (Respondents)

Variables	Accra (Total 150)		Ashaiman (Total 50)	
Sex	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Male	150	100.0	50	100.0
Female	0	0.0	0	0.0
Age				
Below 20	9	6.0	3	6.0
20 – 29	77	51.0	23	46.0
30 - 39	44	31.0	16	32.0
40 - 49	16	10.0	6	12.0
Above 50	3	2.0	2	4.0
Educational level				
No formal education	8	5.0	3	6.0
Basic education	60	40.0	33	66.0
Second cycle education	77	52.0	13	26.0
Tertiary education	5	3.0	1	2.0
Marital status				
Single	58	38.67	12	24.0
Married	89	59.33	37	74.0
Divorced	3	2	1	2.0
Ethnicity of riders				
Akan	16	10.0	7	14.0
Mole-Dagbani	73	50.0	33	66.0
Ewe	36	24.0	7	14.0
Ga-Adangme	18	12.0	2	4.0
Foreigners	7	4.0	1	2.0
Ownership of bike				
Personal	74	49.33	29	58.0
Relative	18	12.0	6	12.0
Work and pay	49	32.67	10	20.0
Daily sales	9	6.0	5	10.0
Monthly Income				
200 – 400 cedis	33	22.0	22	44.0
401 – 600 cedis	44	29.33	16	32.0
601 – 800 cedis	43	28.67	6	12.0
801 – 1000 cedis	30	20.0	6	12.0

Source: Fieldwork, 2018.

Concerning gander differentials from Table 4.1, all riders were males. From the survey, it revealed that Okada business is gender bias where all riders were males. However, it was established that the nature of the business is risky and courageous men were engaged in it; hence, men dominate (Odero et al., 1997; Wu and Loo, 2016). Peltzer and Mashego (2003) studies in South Africa confirmed that motorbike riding is mostly associated with males as males are more risk- tolerant. Most studies report on the significant relationship between men and the operation of motor taxis (Glendon et al., 1996; Henwood et al., 2011). Evidence from this study has confirmed it.

The age differences of riders show that the majority of participants falls between the ages of 20-29 years, as presented in Table 4.1. This represents 51% of the sample in Accra, while 46% represents the same group in Ashaiman. A smaller section of the respondents falls above 50 years, which represents 2% in Accra and 4% Ashaiman. According to Ghana's National Youth Policy (2010), youth is defined as persons between 15-35 years. Per the study, the age structure is still a youthful one with the more significant proportion of riders under 35 years (88%) although the study extended the age range to 39 years. According to the research carried out by Peltzer (2011) and Oteng-Ababio and Agyemang (2012), operators of Okada are usually in their youthful ages. Generally speaking, people get risk-averse as they age, thus; older people are less likely to engage in Okada as they might find the business too risky as compared to the younger ones (Oginni et al., 2007). Again, it has been established that there is a significant relationship between age and risk perception of riding among the youth (Machin and Sankey, 2008). As risk perception informs behaviour, young people are therefore more likely to exhibit risky behaviour. According to Boholm (2003), the majority of respondents being youthful implies that they might be more likely to ride their bikes in a riskier manner. Meanwhile, the few riders who fall under 18 years of age

contravene the existing national traffic regulation which does not permit such persons to acquire a riding license. By inference, it can be concluded that most of the riders are in their active age and therefore needed a source of income.

Regarding the educational status of riders, it was observed that 5% and 6% of riders in Accra and Ashaiman respectively had no formal education, as shown in Table 4.1. Interestingly, majority of the respondents indicated that they had some level of formal education with over 89% having basic level education. The majority of the riders in Accra were second cycle graduates representing 46% as compared to Ashaiman riders who had 20%. A small proportion of riders had tertiary education with 3% representing 6 riders from both study areas. Ashaiman is mostly a slum community/low-income area where unskilled and less educated people mostly migrate to, hence the high level of less educated and unskilled riders. It is therefore not surprising that riders in Accra are generally more educated as compared to those of Ashaiman. The few uneducated riders lack the requisite qualification to make them employable in the formal sector hence, would resort to menial jobs like Okada operations.

Furthermore, as displayed in Table 4.1, the results of rider's marital status show that most of the participants were married. The percentage of married respondents was 59.3% and 74% for Accra and Ashaiman respectively. A considerable number were single with a percentage of 38.7% and 24% for Accra and Ashaiman respectively. The marital status of riders from the quantitative scores shows most of the riders are married; therefore, it is likely these riders will take safety precaution when riding since they are family men and have dependents to cater for. Again, it is conceivable that dependents (family) of men encourage and serve as a source of motivation (subjective norm) to unemployed riders to enter the Okada business. An interview with a rider indicated that most operators lacked formal employment and needed financial security. This was recounted as follows;

> *"Many of us entered Okada business because we were jobless and most of us are family men. We cannot just sit at home doing nothing. Okada has helped us to take good care of our families with the earning from the business. Okada business has helped many riders which have enabled us to get married, pay our children's fees, and even taken care of our families back home".* (*A 31-year-old station master, Madina).*

With respect to the ethnicity of operators as presented in 4.1, the Mole–Dagbani (originally from the northern part of Ghana) was the dominant group among the riders and formed 50% of Accra sample and 66% of Ashaiman respondents. However, the smallest group being Ga-Adangme constituted 12% of the sample in Accra compared to 4% in Ashaiman. Surprisingly, foreigners constitute 4% of the respondents in Accra while their counterparts in Ashaiman were about 2%. It has been established that the usage of a motorbike is a common practice in the three northern regions where every household is known to own a bike hence, their dominance (Afukaar and Ofosu-Amaah, 2003; Damsere-Derry et al., 2010 and Konkor et al., 2019). Also, the last three-decade of conflict in the Northern part of the country has compelled many to relocate down south for survival, especially in the Okada business. These riders easily engage in the business due to the lack of employment opportunities. Foreigners who were in the Okada business were from neighbouring countries like Togo, Burkina Faso, and Nigeria.

However, from the field survey as displayed in Table 4.1, 51.5% of motorcycle taxi riders own their motorcycle. It was revealed that most riders acquired their motorcycle through some form of hire purchase agreement popularly known as 'work and pay' where riders pay returns ranging from GH¢ 150 to GH¢ 250 weekly to bike owners. As a result of this, most riders get to own bikes after they have successfully fulfilled the installment payment plan. Again, the result shows that 49.3%

of the respondents in Accra acquired their bikes through 'work and pay', whereas 58% of their counterparts did same in Ashaiman. Bikes without a hire purchase agreement and bikes owned by relatives of the riders were the lowest in both areas. Generally, there has been an increase in the use of motorbikes (DVLA, 2014) and (Ghana Police Service, 2012). This is as a result of the high urban growth rate, mostly in an unplanned manner worsening the traffic situation (Agyemang, 2009). Also, in the study, it was disclosed that some Okada stakeholders were not riders but purposely bought motorbikes for interested persons (riders) to be used as Okada within the policy of 'work and pay', that is the hire purchase agreement. The operational and low set-up cost saw the venture thriving. As at the time of the study, the price of a brand-new Royal motor with its protective gears and accessories (helmet, reflective jacket, and tools kits) cost ₵3,500 (approximately $ 750 [1 USD = ₵ 4.70 as at May 31, 2018]). With the provision of these hire purchase agreements, riders who came on board were mostly in haste to fulfil their part of the purchase agreement. This can partly explain why some of them may engage in reckless riding. The author believes that this could be a leading factor in the increase of motorbikes in the system and the possible consequence of these crashes. An interview with an officer with the state regulator, DVLA, described the increase in the registration and usage of motorbikes in the following narrations:

> *'Motorbike registration has variably increased in recent times, and it has taken a total volume of about 25% of all vehicular registration yearly and has grown much faster than the automobile fleet in recent years'. (Director for Vehicle Inspection and Registration, DVLA, Accra)*

With respect to the monthly income earned by riders, Table 4.1 shows that 22% and 44% of motorists in Accra and Ashaiman respectively made the lowest monthly income between ₵200-

₵400. The riders with the highest earnings range from ₵801 – ₵1000 with 20% of the sample in Accra and 12 % of the sample from Ashaiman. This means a more significant proportion of riders make a good profit from Okada business in Accra as compared to riders at Ashaiman. However, it was noted that some riders in Accra were engaged in delivery and courier services, especially with riders operating in the vicinity of Circle and Accra CBD and might be the reason for the higher returns accruing to them. However, motorists in Accra stand a higher risk (perceived behaviour [Accidents]) and have a high tendency of crashing since they undertake more trips.

Nonetheless, the current minimum wage as prescribed by the government of Ghana is GH₵ 10.65 (approximately $2) which translates to GH₵ 319.65 (approximately $65) for thirty days. In essence, these riders averagely make more than the national minimum wage as the majority of them indicated earning more than this minimum monthly income. The financial attraction of Okada operations appears excellent to be resisted by such desperate unemployed youth despite its unlawful and risky nature. Starkey (2008) indicated that motorcycle transport services have been on the increase and booming in Africa due to the profitable nature of the business, and this study has proven that.

Objective 2:

4.3 Perception of risk among Okada Operators

4.3.1 Attitudes and belief system of Okada operator towards risk (Knowledge of legalities)

This section presents and discusses the perception of Okada riders on the legal regime of Okada operations as well as common ways operators avoid law enforcement as the laws governing riding: criminalises and prohibits the use of motorcycles and tricycle for commercial purposes. Also, it points out how the unlawful nature of the business affect the risk perception of the rider.

Table 4.2: Rider's knowledge on the legality of Okada operations

Legal issues perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Legality of Okada	Yes	100 (67.1)	40 (80)	140	**2.980**	**0.084**
	No	49 (32.9)	10 (20)	59		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.3.2 Rider's knowledge on the legality of Okada

An overwhelming majority of respondents, about 67.1% and 80% from Accra and Ashaiman respectively knew the illegality of the use of motorcycle for commercial purpose and that it was against the laws of the land. However, 32.9% of the riders from Accra and 20% of the respondents from Ashaiman stated they were unaware of the prohibition of the use of Okada while 1 respondent declined the question. Again, there is no statistically significant association **(chi-square value of 2.980, a p-value of 0.084)** between riders' knowledge on the legal regime of Okada and their area of operation as indicated in Table 4.2. The use of motorcycle for commercial purposes has been outlawed in the country as stipulated in the Road Traffic Regulation LI 2180, 2012 (Oteng-Ababio and Agyemang, 2012). An overwhelming majority of respondents both in Accra and Ashaiman knew about the illegality of the use of motorcycle for commercial purpose, thus, Okada. However, few of the respondents in both study areas stated they were unaware of the ban on the use of Okada. To most riders, the Okada business is a means of livelihood. The majority

of the motorcyclists, therefore, requested for the legalisation of Okoda operations since it was very lucrative and helped them earn a decent living. The finding corroborate tat of Amankwa-Baafi (2018) on the same issue. The existence of the law that prohibits the use of motorbike for commercial purposes and the resistance of Okada operators means that riders will continue to operate in fear and anxiety which could lead to unexpected road accidents (Wilde, 2006) and death (Ghana Police service, 2012). The illegal regime of Okada has made the law enforcers target riders for harassment and extort money from Okada operators. Consequently, there is a high prospect of incidents of clashes between law enforcement agents and Okada operators, which will destabilises the transport system (Bessey, 2018).

Table 4.3: Riders' views on the amendment of laws for Okada operation

Legal issues perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Amendment of Okada laws	Yes	116 (77.3)	38 (77.5)	154	**3.639**	**0.030**
	No	34 (22.7)	11 (22.4)	45		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.3.3 Riders' views on the amendment of laws for Okada operation

The opinion of riders on whether the law banning Okada should be amended or not, most riders responded in the affirmative with 77.3% and 77.5% from Accra and Ashaiman respectively agreeing and suggesting the law should be changed. Whereas 22.7% and 22.4% from Accra and

Ashaiman respectively disagreed the law be changed as shown in Table 4.3. It was once again observed that there is no statistically significant relationship **(chi-square value of 3.639, a p-value of 0.030)** between these two study areas. Both riders in Accra and Ashaiman agreed the laws governing Okada should be changed making the business a legal one. The rate at which the Okada service is rapidly gaining acceptance and popularity with commuters have attracted public discussion. In recent times, there has been claims and counterclaims by the government and the civil society, whether to legalise Okada or not. To seek the opinion of riders, a question was asked as to whether lawmakers should amend the laws to legalise the commercialisation of the motorcycle usage. In affirmation, most riders in Accra and Ashaiman called for an amendment while a handful disagreed. However, the Chairman for Ashaiman Motor Riders' Associations confirmed that several efforts have been made by some group of riders called Ghana Private Motorbike Operators Union (GPMOU) and Coalition of Okada Legalisation in Ghana (COOLIGHA) in February 2011 and 2017 respectively to the lawmakers with their grievances. Similarly, in 2013 riders in Segakope, Volta region embarked on a demonstration against LI 2180, emphasising that Okada as their primary mode of mobility. Now, it lies in the bosom of the legislators to consider these petitions to be passed into laws (Amoah, 2011). Despite the vigorous agitation by most riders, a station master in Accra (Circle), disagreed and indicated that the amendment of the law could lead to increasing road accidents. He intimated this as follows:

> *"Legalising Okada is to indirectly increasing the death rate on our roads since it will attract more youth to the business. Most of the riders at Circle, Accra, are rude, disrespectful, selfish, and are not ready to join any association to help develop their skills to ensure safety on our road". (A 36-years-old station master, Accra)*

On the contrary, the following are excerpts of responses from interviews with a rider and a parliamentarian on the amendment of the law. On the part of the rider, he passionately stated that:

> *"The laws against Okada must be decriminalised and legalised since it denies the state of revenue generation. There is a group called the Coalition of Okada Legalisation in Ghana (COOLIGHA) whose role is to spearhead and facilitate the legalisation of the Okada. Several petitions have been sent to parliament, the seat of government, and even the media houses to make the general public understand and accept the work we are doing. The association believes that, as at the time Okada laws were passed, Ghanaians were not sure what Okada was, but today it has come to stay. Hence there must be an amendment. If Okada is bad, why then should security officers patronise our services without feeling guilty and ashamed of their actions? This shows clearly that the laws on Okada are outmoded and very useless to the state. To the rider, Okada business is a bread and butter affair, and for that, the laws must be amended". (The secretary of COOLIGHA, Ashaiman).*

Also, an interview granted by a parliamentarian expressed a different viewpoint on the modification of the law.he responded as follows:

> *"For now there is no law being prepared by the Minister of Road and Transport, neither has parliament received any bill from the executive arm of government to legalise Okada, but parliamentarians whose constituencies fall within the cities are fighting against the Okada legalisation while those in the rural areas are strongly fighting for it legalisation due to the poor nature of their roads". (The Chairman for Parliamentary Committee on Transport, Accra).*

Amid all these, the author believes that it is apparent commercial motorcycling business is vital and functional to the economic value of the riders in the study areas. This buttress preceding argument of Adeniji (2009) on the need for government to amend the laws regulating Okada operation to sustain the industry, though with a reasonable level of regulation that could check abuses and excesses of riders.

Table 4.4: The presence of police and it impact on Okada operation

Legal issues perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Police Presence	Yes	108 (72)	36 (72)	144	**0.000**	**1.000**
	No	42 (28)	14 (28)	56		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.3.4 The presence of police and it impact on Okada operation

Respondents constituting 72% from both Accra and Ashaiman admitted that the presence of the police scared and prevented them from doing their usual work. However, some riders who sum up to 28% from both Accra and Ashaiman mentioned that they were not afraid of the presence of the police in the city, as displayed in Table 4.4. From the results, a test for chi-square indicates that there is a no statistically significant association **(chi-square value of 0.000, a p-value of 1.000)** between riders in Accra and Ashaiman.

It expected that the strong presence of the police in the city would scare the Okada operators. Some riders who sum up to be the majority identified themselves to be afraid of the presence of the police in the city. Respondents constituting the minority insisted the presence of the police does not scare or prevent them from doing their usual work. From observation, the researcher noted that there is a strong police presence to combat Okada operations in both study areas. As a result of this, riders do not like the idea of servicing clients to a specific part of the city, for example, Accra Timber Market, Abogbloshie, Accra Central Business District (CBD) areas and Ashaiman traffic light. A report by Yahaya, (2015) collaborates that the police are enforcing the laws prohibiting the commercial use of motorbike and adding that, from experience and background, the police consider Okada as not a safe means of public transport. By implication, the continuous presence of the police in the study areas would ensure some level of sanity hence reducing unnecessary road accidents.

Table 4.5: Okada riders encounter with the Police

Legal issues perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Encounter with the Police	Yes	144 (96)	45 (90)	189	**2.597**	**0.107**
	No	6 (4)	5 (10)	11		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.3.5 Okada riders encounter with the Police

As displayed in Table 4.5, majority of riders constituting 96% from Accra and 90% from Ashaiman reported that they had been in the grips of the police while 4% and 5% from Accra and Ashaiman correspondingly reported that they had not been arrested before. Once again, there was no statistically significant association **(chi-square value of 2.597, a p-value of 0.107)** between riders. Per observation by the researcher, it portrayed the police are really on top of issues in trying to fight the use of motorcycle for commercial purposes. Eventually, almost every Okada rider had been arrested by the police or city guards at one point in time. Majority of riders from Accra and Ashaiman reported that they had been in the grips of the police for not having either a valid license, roadworthy sticker, unregistered bike, not wearing safety gears, violating of the traffic light and even sometimes showing disrespect to security personnel. On a bad day, riders claimed police arrested them for no reason(s) though they could provide all documents and logistics needed for riding.

The police had not arrested a few lucky riders and these motorcyclists were either new riders or had been avoiding trips to Accra Central Business District and Ashaiman traffic light. Regarding the modified conceptual framework, with stimulation from "Theory of Reasoned Action'' and ''Theory of Planned Behaviour'', the continuous presence and arrest of riders by the police (Barrier) would send a signal to riders to quit the operation most especially since its illegal.

Surprisingly, riders after their arrest were not prosecuted by the police with reasons being that influential people within the society like senior government officials, senior security officers, chiefs, religious leaders and prominent persons call in to intercede and plead on behalf of these riders. On the other side, the few unlucky riders arrested were prosecuted at law court, and there, riders were fined between ₵600 to ₵1500 (approximately $100 to $350 dollars). This practice of favouritism and biases were common among riders in both areas under study.

Once again, riders bemoaned the rate of extortion from some police officers despite providing valid document and further accused the police of using them as a money-making venture. For example, riders claim some police officers incessantly extort an amount of ₵50 to ₵200 cedis (approximately $15 to $50) upon arrest. An interviewee dealt with the integrity of the police and passionately reported that;

> *"The police do not have the moral right to fight against the operation of Okada since they do patronise our services and also use us as a money-making venture". (The secretary of COOLIGHA, Ashaiman).*

This inhuman treatment of police officers has led to a recent clash between the police and Okada riders at Ashaiman as captured by Xornam (2018).

Table 4.6: Rider's adherence to road traffic regulation

Legal issues perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Riders adherence to road regulations	Yes	104 (69.3)	45 (90)	149	**12.040**	**0.007**
	No	46 (30.6)	5 (10)	51		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.3.6 Rider's adherence to road traffic regulation

From Table 4.6, it is shown that 104 of the respondents representing 69.3% from Accra whereas 45 of the respondents representing 90% from Ashaiman suggested that it was safe and agreed that they comply with traffic rules. On the contrary, a few did not agree as 46 respondents representing 30.6% and 5 respondents representing 10% of riders from Accra and Ashaiman respectively. Again, there is no statistically significant association **(X^2= 12.040, p= 0.007 chi-square value of 12.040, a p-value of 0.007)** between riders of Accra and that of Ashaiman.

During the observational studies, it was noted that riders in both Accra and Ashaiman did not comply with road traffic regulations. Example, motorists did not heed to traffic light, road signs and other road users. Again, riders were seen riding on the shoulders of the road, pedestrian walkways, and footbridges. For that matter, a question sought to know if riders felt it was safe to obey road traffic regulations. From the survey, it shows that many riders suggested that it was safe and agreed to comply with traffic rules, while a few disagreed but violated the rules to protect their businesses and themselves. For example, riders are quickly arrested by Police when they stop to obey traffic lights when its red. It shows that riders in both areas had a high-risk perception of safety but did not relate to it. This confirms that some riders do take a risk for their safety, as stated by (Wilde, 2006).

Table 4.7: Risk perception and rider's area of operation

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Location of riders	Yes	149 (99.3)	49 (98)	198	**0.67**	**0.412**
	No	1 (0.67)	1 (2)	2		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.3.7 Risk perception and the location of riders

The study explored if there is an association between risk perception and location of Okada riders. Out of the 200 respondents, 149 representing 99.3% operators in Accra had a higher risk perception compared to 49 operators in Ashaiman, representing 98%. However, there was no statistically significant association **(chi-square value of 0.67, a p-value of 0.412)** between risk perception and the area of operation as display in Table 4.7. **Considering the result of the Chi-square, the study accepts the null hypothesis. Therefore, there is no significant relationship between Okada riders in Accra and their risk perception. Similarly, there is no significant relationship between Okada riders in Ashaiman and their risk perception**.

From the survey, it has been established that irrespective of the location, riders perceive motor riding as dangerous and risky as described by some researchers like Oginni et al., (2007), Vanluar and Yannis (2006 Nonetheless, it was also observed that riders in Ashaiman were more united and organised compared to riders in Accra. Moreover, riders in Ashaiman had a strong leadership front where riders who misbehaved were sanctioned. In this sense, it is very easy for Ashaiman riders

to be controlled under one umbrella and conscientised about the risky nature of Okada business and stick to safe riding.

Table 4.8: Income earned and risk in riding

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
The worthiness of amount earned to risk.	Yes	65 (43.3)	20 (40)	85	**0.171**	**0.680**
	No	85 (56.7)	30 (60)	115		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.3.8 Income earned and risk in riding

Field finding, as displayed in Table 4.8, provides a summary of the rider's income earned and measured with the risk involved in riding. Majority of the riders summing up to 85 respondents representing 56.7% of the riders from Accra and 30 respondents representing 60% from Ashaiman stated that the income earned from Okada operation did not meet the risk involved in the business while 65 respondents representing 43.3% of the riders from Accra and 20 respondents representing 40% from Ashaiman reported that the income earn merits the risk involved in the business. Again, there is no statistically significant relationship **(chi-square value of 0.171, a p-value of 0.680)** between the response of riders in Accra and Ashaiman.

Riders provided a summary of their financial viability (income earned), and it was measured with the perceived risk involved in riding. After riders have deducted the cost of fuel used, cost incurred

through maintenance and bribes paid to security officials from the income earned, the mainstream of riders stated that the income derived from Okada operation did not meet the risk involved in the business. A small number of riders reported that the income earned merits the risk involved in the business. The reason for the response of most riders was that the cost of healing/seeking medical care in time of an accident is higher than the amounts they earn. Once again, motorcyclists lamented that money earned is not enough to save to secure the future most especially when their health fails them. This show that riders admit their business is highly risky and also have a high-risk perception about their operation. The mismatch of the risk involved and the monetary gain from the Okada has revealed in an interview that the business is not the primary career choice for many riders. The involvement of riders in the business is as a result of the unavailability of other viable employment opportunities. A young rider recounted in an interview that:

> *"I am in this business because of money, and if I am to earn even ₵300 from any other decent job, I will stop Okada completely". (A 26-year-old rider, Accra central MTTD,).*

The study also enquired about the price variation in fares charged by Okada riders. A majority constituting 77.3% and 70% of respondents claim they charged more than ₵5 (equivalent to 1 dollar) per trip in Accra and Ashaiman respectively. With a small proportion of 22.7% and 30% charge less than ₵5 per trip in Accra and Ashaiman respectively. Again, with the fare variation, there is no statistically significant relationship **(chi-square value of 1.090, a p-value of 0.296)** between the response of riders in Accra and that of Ashaiman. For prices charged for Okada services, comparatively, riders who charged less than ₵5 were mostly respondents from Ashaiman while riders in Accra charged more. This is to be expected since the demand for Okada services is higher in the Central Business District consideration the tedious and hectic traffic congestion in this area and the city of Accra at large hence making the charge per trip higher. Also, it was

discovered that the time of the day determined the price a pillion rider would be charged. The riders explained that, during the rush hours in the morning between 7 a.m to 9 a.m when traffic congestion is high, Okada demand is very high and also the risk of involving in a crash is equally high hence higher charges. This choice of riders charging higher fares during rush hours and rainy season demonstrate clearly that riders have a high-risk perception of their work. Also, it has been established from this study that Okada services are more expensive than other modes of road transport in the city. For example, riders charge between ₵15 to ₵25 (equivalent to 3-5 dollars) from Okponglo to Accra CBD while public transport (*trotro*) charges ₵ 2.60 pesewas which is less than a dollar. Per observation which is strengthened by Oteng-Ababio (2011), it was noted that Okada is mostly reserved for commuters who want to escape heavy traffic congestion and are in haste to get to their destination on time especially during rush hours and as such pillion riders were willing to pay higher fares. In spite of the profitable nature of the Okada business, riders do not pay any taxes to the government for national development due to the unlawful nature of it.

Table 4.9: Accident experienced by riders

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Accidents experienced by riders	Yes	83 (55.3)	31 (62)	114	**0.680**	**0.410**
	No	67 (44.7)	19 (38)	86		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.3.9 Accident experienced by riders

From Table 4.9, comparatively, 83 respondents sampled representing 55.3% of the riders in Accra against 31 respondents representing 62% of the riders from Ashaiman had experienced motor accidents. On the other hand, 67 respondents representing 44.7% of the riders from Accra against 19 respondents constituting 38% of riders from Ashaiman claimed to have never been in a motor accident. Again, there is no statistically significant relationship **(chi-square value of 0.680, a p-value of 0.410)** between riders in Accra and Ashaiman.

According to the World Bank (2002), more than 1.7 million riders globally get involved in accident yearly. Nonetheless, global statistics about road crashes are very high, and riders within GAMA are not exceptional. Ghana, for example, records a crude rate of 8.6 persons per 100,000 accidents and there is the possibility of road traffic causalities increasing with the operation of the Okada transport system (Oteng-Ababio and Agyemang, 2015). When riders were asked about accidents they have experienced, the majority of the sample respondents in Accra and Ashaiman agreed to the fact that most riders had been involved in accidents in the past with a level of injuries. However, quite a number of riders in both study areas responded that they have never been engaged in an accident before. To this effect, a test for chi-square shows there is no statistically significant association concerning risk perception and accident history of riders.

When further asked whether these riders knew of any fellow rider who had ever been involved in an accident, the majority answered affirmatively. Clearly, it shows that many riders had been engaged in an accident as reported by the safety policy of National Road Safety Commission (2013), Lahrmann et al., (2015) and Karikari (2018). A recount from an interview with an official from NRSC reveals the high rate of accidents among Okada riders, and he intimated that;

> *"The report before my office shows that indeed, recent statistics indicate that death toll through Okada accidents have exceeded vehicle accidents and it is at a high rate. To ensure*

safety on our roads and reverse the situation, the NRSC as an institution makes sure that each rider wears protective and reflective apparels like knee cap, elbow caps, riding boots, gloves, and most importantly helmet. Also, Okada riders who are already on our roads are trained and educated when the police apprehend them before they are discharged'. (*A38-year-old NRSC officer, head office, Accra).*

The outcome of the study has clearly shown that both riders and stakeholders (state institutions) admit the operation is risky, and there is a negative tendency inherent from Okada operation.

The motorcycle transport business contributes enormously to the high rate of accidents in the study areas. The high accident rate is attributable to the lack of training and traffic education among motorcycle operators, speeding, the impatience of riders, the flagrant lack of traffic regulations and regulations and the reckless riding of operators. Per report from the police, between 5 to 15 fatal accidents are recorded weekly (Accra central police MTTD Public Relation Officer, personal communication 20th April 2018). In connection to the above, an interview with police MTTD officials attributed the causes of motorcycle crashes to speeding of the cyclists, overloading, rough overtaking of the riders, dangerous riding, lousy road and loss of control by the riders. These factors according to the report, have contributed to the high rate of road accidents in GAMA.

Table 4.10: Accident impact on risk perception

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
How accidents affect Okada operation	Yes	65 (43.6)	20 (40.8)	85	**0.119**	**730**
	No	84 (56.4)	29 (59.2)	113		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at p < 0.050

Source: Fieldwork, 2018.

4.3.10 Accident impact on risk perception

A higher proportion of the rider's 84 respondents representing 56.4% from Accra against 29 respondents representing 59.2% of the riders from Ashaiman indicated that the accident they had previously experienced does not scare them from their operation. On the other hand, 65 respondents representing 43.6% and 20 respondents, representing 40.8 % of riders from Accra and Ashaiman respectively agreed that their experience had scared them from operating in the business. From the sample respondents from both study areas, there is no statistically significant relationship **(chi-square value of 0.119, a p-value of 0.730)** between the study areas as presented in Table 4.10.

Although most of the respondents admitted that many riders had been involved in accidents, conversely, less proportion of the riders indicated that the crash they had previously experienced does not scare them from the operation. A good number of riders, in contrast with the majority from Accra, agreed that their experience had scared them from operating in the business and as

such, they take a new precautionary approach to safe riding. With such mindset and risk perception of Okada operators, the rate of fatality figures of road accidents may be likely to reduce over time even though rider's affirmed accidents as part of their work. Indeed, the signal is clear that Okada operators are very brave-hearted, adventurous people and risk-tolerant.

4.4 Role of attitudes and beliefs system on the aspect of safety

Variables in this section sought to find out the safety perception of riders based on the rider's knowledge, attitudes, beliefs and the adherence to safety in the operation of Okada.

Table 4.11: Risk perception and superstition

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Riders believe in superstition	Yes	69 (46.3)	23 (46)	92	**0.001**	**0.097**
	No	80 (53.7)	27 (54)	107		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.1 Risk perception and superstition

Out of the 200 respondents, 46.3% and 46% believed in superstition in Accra and Ashaiman, respectively. While 80 and 27 respondents representing 57.3% and 54% correspondingly in Accra and Ashaiman did not believe in superstition as far as a risk in riding is concerned. Also, 99 respondents representing 66% of riders constituting a majority in Accra did not believe superstition is the cause of some accidents, while 28 respondents presenting 56% of riders in Ashaiman believed superstition is the cause of accidents.

With no significant association **(chi-square valueof 0.001, a p-value of 0.097)** from Table 4.11, it is noted that there is no relationship between risk perception and belief of riders with the two study areas. A small section of the sample of respondents in both Accra and Ashaiman believe in superstition and perceive it is the cause of some accident. For example, some riders believed that someone (fellow riders, family and friends) could take you to a spiritualist or even bewitch you to get involved in an accident out of envy. Majority of cyclists in these two study areas did not believe in superstition so far as a risk in riding is concerned. The author noted that respondents felt very uncomfortable in responding to this very question through the body language. This confirms the study by Peltzer (2003) and Legarde et al., (2007) in Sub-Sahara Africa that some riders believe superstition (belief) is the cause of some accidents. From the study, it can be concluded that most riders in Ashaiman are more rooted in African myth as compared to riders in Accra. Most Ashaiman riders were seen in all forms of magical rings and necklace.

Table 4.12: Riders and drunk riding

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Is drunk riding acceptable	Yes	16 (10.7)	2 (4)	18	**7.797**	**0.050**
	No	134 (89.4)	48 (96)	182		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.2 Riders and drunk riding

Of the riders sampled from Accra and Ashaiman, 16 and 2 respondents representing 10.7% and 4% respectively believed drunk riding is good. Majority of the respondents, 134 and 48 presenting 89.4% from Accra and 96% from Accra and Ashaiman suggested that it was not acceptable to drink and ride. Again, there is no statistically significant association **(chi-square value of 7.797, a p-value of 0.050)** between riders from both study areas, as shown in Table 4.12.

The question sought to explore the practices of riders towards drunk riding. A few of the participants agreed to it with a lot of them coming from Accra. These riders suggested that upon taking alcohol, it boosts their confidence and make them more hyper to work for longer hours. This finding corroborates on studies by Peltzer (2011) and Adisa (2010). Also, there has been confirmation from previous studies that some riders ride under the influence of alcohol. Majority of the respondents with a lot coming from Ashaiman suggested that it was not acceptable to drink alcohol and ride since it enhances a rider's chance of getting an accident and also it is very risky riding behaviour. Again, it was noted that among the Mole Dagbanis, most of whom are Muslims (GSS, 2010) and it is against their faith to take in alcohol perhaps reflecting in the response of most riders. Simply put, riders have a high-risk perception of drunk riding.

Table 4.13: Riders risk perception and spiritual protection

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Spiritual protection	Yes	80 (53.3)	31 (63.3)	111	**1.477**	**0.224**
	No	70 (46.7)	18 (36.7)	88		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.3 Riders risk perception and spiritual protection

It can be observed from Table 4.13 that 80 and 31 respondents constituting 53.3% and 63.3% of the respondents in Accra and Ashaiman respectively do believe in protecting themselves spiritually while 70 and 18 respondents representing 46% against 36.7% of riders from Accra and Ashaiman did not believe in protecting themselves spiritually in their operations. Statistically, there is no significant association **(chi-square value of 1.477, a p-value of 0.224)** between the rider's perception and spiritual protection in the study areas.

It was observed that most respondents did believe in protecting themselves spiritually while a minority of the respondents did not believe in protecting themselves spiritually in their operations. From the quantitative data, it can be deduced that riders in Accra believed in protecting themselves spiritually compared to those at Ashaiman. It could be as a result of the busy nature of the city of Accra with hectic traffic congestion increasing a rider's chances of getting involved in an accident. Therefore, the need to secure themselves by consulting spiritual/magical powers. The researcher

observed that, even though riders insist they did not protect themselves spiritually, most riders were seen wearing magical rings, armlets, and talisman that hung on the throttle of their bikes. This sends a different signal about the responses given by most riders. Besides, the use of rings, armlet, and talisman are common practices (cultural practices) among the Mole-Dagbanis who dominate among riders hence, its introduction into Okada business. Some riders' intention of protecting themselves spiritually against accidents is likely to encourage them to engage in careless riding with the hope and belief of being saved, but will adversely lead to fatal accidents (Peltzer and Renner, 2003).

Table 4.14: Rider's attitude toward regular maintenance of bike

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Maintenance of bike	Yes	132 (88)	50 (100)	182	**6.593**	**0.010**
	No	18 (12)		18		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.4 Rider's attitude toward regular maintenance of a bike

From Table 4.14, out of the 200 sample, 132 and 50 respondents representing 88% and 100% of the respondents in Accra and Ashaiman indicated that they undertake maintenance services of their motorbike on regular basis (either daily or weekly basis). Whereas 18 of the respondents summing

up to 12% in Accra did not undertake maintenance services of their motorbikes regularly. There is no statistically significant association **(chi-square value of 6.593, a p-value of 0.010)** between risk perception and regular maintenance of bike among riders in Accra and Ashaiman.

For bike maintenance, respondents indicated that they perform regular maintenance services of their motorbike (either daily or weekly basis). Motorcyclists claimed they perform routine maintenance services themselves and only visited the mechanic shop when the bikes developed a major problem. Most of the riders perform maintenance services because they consider the nature of the Okada business very dangerous and as such regular servicing could save their lives whereas a few of the respondents did not service their motorbikes regularly unless it developed a major mechanical fault. Respondents who did not service their bikes frequently further suggested that their bikes were new and did not need immediate servicing. This confirmed that riders have a high-risk perception of their operation. This idea of self-maintenance by riders is a contributing factor to the low patronage of roadworthy inspection and certification. The question of the competency of the riders as servicers of motorbikes also comes into focus. When self- maintenance is coupled with no third party and expert evaluation of the bike, how well will we know that the bike is in a suitable condition to guarantee the safety of the rider and the pillion rider?

Table 4.15: Usage of helmets and other protective apparels

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Is usage of safety gears useful	Yes	95 (63.3)	34 (68)	129	**0.357**	**0.550**
	No	55 (36.7)	16 (32)	71		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.5 Usage of helmets and other protective apparels

From Table 4.15, it was asked if the use of helmet and other protective apparels was necessary. The majority of the respondents 95 and 34, representing 63.3% from Accra and 68% from Ashaiman respectively were in agreement that it was very needful to wear protective gears. The remaining 55 and 16 respondents representing 36.7% from Accra and 32% from Ashaiman respectively, on the other hand, suggested that it was not necessary to use protective gears. Once again, there is no significant relationship **(chi-square value of 0.357, a p-value of 0.550)** between riders in Accra and Ashaiman toward the use of safety gears.

On the other hand, when riders were asked if it was needful to provide safety gears for pillion riders, almost all the respondents 140 and 47 in both Accra and Ashaiman with 94.6% and 94% respectively answered in affirmative. Only a few, 8 and 3 respondents representing 5.3% and 6.0% in Accra and Ashaiman respectively disagreed. Again, there is no statistically significant

association **(chi-square value of 1.242, a p-value of 0.743)** between risk perception and the provision of safety gears for pillion riders in both study locations.

Per observation, not all safety gears were commonly used, and it prompted the researcher to ask if the use of helmet and other protective gears was necessary. The majority of the respondents were in agreement that it was very needful to wear protective gears. This has also been highlighted by the WHO (2013; 2015) that most of the road crashes in developing countries are not passengers of motorised vehicles but motorcyclists, bicyclist, and pedestrians. Again, it was noted that the majority of riders wear protective gears especially helmet to attract pillion riders using it as a source of advertising and branding. This corroborated the study by Akaateba et al., (2014) in northern Ghana describing the high usage of helmet by both riders and pillion riders. The remaining respondents, on the other hand, suggested that it was not necessary to use protective gears (though helmet was hanged on their motors) with excuses that the heat under this climatic condition was severe. This result corresponds with the studies by Agyekum-Boamah (2012) indicating that some riders do not use protective gears especially helmets. However, a study by Oteng-Ababio and Agyemang (2015) conducted in some part of GAMA stated that the use of helmets was less among riders, but this study has proven otherwise which indicate that the risk perception, understanding and knowledge of riders have improved over the years. Nonetheless, some riders have the notion that regardless of the usage of protective gears or not what will happen will happen with a popular quote that says “all die be die” thus accidents were as a result of fate.

Again, riders exhibited a high level of risk perception when a majority of them admitted it was useful to provide helmets for pillion riders. On the contrary, some riders complained that most pillion riders especially the females refuse to wear the helmet provided for them with the excuse of muddling/messing their hairstyle and also felt it was not hygienic to share helmets with others

without it being given proper disinfection. A station master attested to the high usage of helmet and recounted through an extensive interview that;

> "*Everyone rider has at least a helmet, so if a rider with one helmet has a pillion rider, he will ask another rider with two helmets. If you do not have two helmets, you will not be allowed to pick up pillion rider.* (*A 3-year-old station master, Ashaiman traffic light).*

This statement expresses how sensitive riders' response to safety adherence in their operations and it displays riders understanding of risk perception.

Table 4.16: Rider's response to careless riding

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Riders response to careless riding	Yes	18 (12)	1 (2)	19	**8.052**	**0.045**
	No	132 (88)	49 (98)	181		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.6 Rider's response to careless riding

Of the 200 respondents in this study, the majority of the participants 132 and 49 who sum up to 88% and 98% from Accra and Ashaiman respectively disagreed that they do not engage in careless riding. Whereas 18 and 1 out of the sample representing 12% and 2% strongly agreed to be

involved in careless riding as displayed in Table 4.16. Similarly, there is no significant relationship **(chi-square value of 8.052, a p-value of 0.045)** between riders in Accra and Ashaiman.

Despite all the negative remarks made the by other road users, the majority of the participants disagreed they engage in careless riding since riders felt it was not safe for them. Whereas a few of the respondents strongly agreed to be involved in reckless riding. These riders who accepted were not careful when riding claimed they needed to escape the police and other security agents hence that attitude as it has been confirmed by Xu (2010) and Wilde (2006). It was observed that riders in Accra were more careless and very rude as compared to riders at Ashaiman. On the other hand, the general perception about the attitude of Okada riders have been worrisome and an interviewee complained bitterly by lamenting that;

> *"Most riders of Okada within Accra are reckless, lawless, irresponsible and their disrespectful attitude endanger both lives and properties. The riders are very radical and if you dare complain they will abuse and show disrespect to you as well".*(*A senior customs officer [private driver], Accra*).

When riders were asked if speeding was safe, in affirmative, the majority of the respondents from Accra and Ashaiman representing 84% and 92% respectively suggested they disagreed to perilous overtaking while 16% and 8% agreed representing Accra and Ashaiman respectively. In order to further assess riders understanding on careless riding, riders were asked if speeding was safe. In affirmative, the majority of the respondents denied and suggested they disagreed in speeding perilous overtake other vehicles while a handful agreed and claimed it was justifiable to speed and overtake because pillion riders who usually patronise Okada services are travelers who wish to

escape the hectic traffic congestion in the city and get to their destinations on time and it collaborates with the studies by (Oteng-Ababio and Agyemang, 2012).

To verify from riders if the use of cell phones during trips was needful, once again, riders responded with 82.7% and 88% representing participants from Accra and Ashaiman disagreed whereas the remaining 17.4% and 12% agreed to the use of cell phone when riding. Again, riders exhibited a high sense of risk perception on the use of cell phone when riding and a majority of participants disagreed entirely whereas the remaining agreed to its use. Riders who agreed added that the nature of their work demanded regular communication with clients and as such if they rejected incoming calls, they were likely to lose money. Vanlaar and Yannis (2006) and Kouabenan (1998) concluded that Africa riders have a high prevalence risk perception and this study has also reaffirmed it.

Table 4.17: Rider's perception on the dangerous nature of Okada

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Is dangerous is Okada	Yes	119 (79.3)	37 (74)	156	**0.715**	**0.870**
	No	31 (20.7)	13 (44)	44		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.7 Rider's perception on the dangerous nature of Okada

From Table 4.17, most riders admitted Okada is dangerous with 119 and 37 respondents representing 79.3% and 74% from Accra and Ashaiman correspondingly. With the other respondents, they suggested Okada is not as dangerous as the public perceives with 31 and 13 respondents representing 20.7% and 44% for Accra and Ashaiman respectively.

Most riders admitted Okada was very dangerous when asked about how hazardous nature of the Okada business. It was confirmed that most of the riders were motivated because of the financial benefit (Intention) as illustrated in Figure 3 that comes with the work and were willing to quit if offered an alternative job. A young rider recounted in an interview on how his financial insecurity has landed him in Okada operation;

> *"I am in the Okada business because of money. I will stop Okada completely if I get any other job because it is too dangerous and the harassment from the police is too much. Just last week one of my friends got seriously injured". (A 37-years-old rider at Accra CBD).*

Table 4.18: Rider's perceived tendency to Crashing

Risk perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Tendency of crashing	High	69 (46.3)	19 (38)	88	**9.644**	**0.008**
	Moderate	61 (40.9)	15 (30)	76		
	Low	19 (12.8)	16 (32)	35		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.8 Rider's perceived tendency of Crashing

When respondents were asked about the risk of crashing as most riders perceived the work to be hazardous from Table 4.18. Out of the 200 samples, 69 and 19 participants representing 46.3% of the riders from Accra against 38% of their counterparts from Ashaiman respectively stated that the tendency of crashing was very high, while 61 and 15 participants representing 40.9% and 30% from Accra and Ashaiman respectively claimed it was moderate. Participants who sum up to 19 and 16 representing 12.8% against 32% from Accra and Ashaiman respectively suggested it was very low to get an accident in their operation.

It is very bothersome to know Okada accidents/crashes mounted to 1,327 in the first quarter of 2018 as revealed by the Research Education and Training Unit of the MTTD directorate of the

Ghana Police Service (Karikari, 2018). This shows that Okada is very risky, and the rate at which it gets involved in crashes are very high. When respondents were asked about the tendency of crashing, most riders perceive the work to be hazardous (Perceived Behaviour control [see Figure 3]) and concluded that the tendency of accidents was very high in both locations under study. These results affirm previous research by Akaateba et al., (2014) and report from NRSC (2011) that indeed motorcyclists account for almost 14.2% of road crashes in Ghana. Regardless of all the dangers and risk involved in Okada, operators still accept to be Okada riders (Behaviour).

Table 4.19: Ownership of rider's License

Legal issues perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
License Ownership	Yes	62 (41.3)	19 (38)	81	**0.173**	**0.678**
	No	88 (58.7)	31 (62)	119		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.9 Ownership of rider's License

From Table 4.19, 41.3% of the riders in Accra and 38% in Ashaiman had licensed. On the other hand, the majority of the respondents, 58.7% of the riders in Accra against 62% in Ashaiman did not have any valid license that authorised them to ride a motorcycle. Even though the license only gave riders the privilege of riding and not for commercial use, the majority of respondents were not also licensed to ride motorbikes in the first place. From the results, a test for chi-square

indicates that there is a no statistically significant association **(chi-square value of 0.173, a p-value of 0.678)** between riders in the two study areas. The issuances of the rider's license are the sole responsibility of the DVLA. Unfortunately, a majority of riders in both Accra and Ashaiman had no license that is category 'A' which permit a rider to use a motorbike under the laws of the land, and this confirms argument made by Akinlade and Brieger (2003). They were of the view that most riders ride without a license. On the other hand, the proportion of respondents who had a valid license that authorised them to ride a motorcycle were more in Accra compared to Ashaiman. Presumably, unlicensed riders do not have the needed formal training/test and this could lead to high fatality and injury since riders are exposed to a lot of road hazards and have a low-risk perception (Petersen, 2007). Moreover, unlicensed riders mostly engage in unsafe and irresponsible riding as riders try to escape law enforcers. Evidence from the results means that unlicensed riders in both study areas are likely to experience accidents. The excuse of unlicensed riders reveals the perception that the cost and process of attaining a valid license are expensive and tedious. A rider recounted that;

> *"A learner rider needs to attend a certified driving school approved by DVLA to enable him to get a license which attracts additional cost to be incurred. Also, time spent in attending a driving school prolong the duration of license acquisition. Additionally, MTTD Police personnel's during operations arrest riders regardless of whether you have a valid license or not. Hence, there is no motivation and need to get a license''. (A 37 years old rider Accra Mall, Accra).*

Table 4.20: Insurance of motorcycles

Legal issues perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Motorbike Insurance	Yes	81 (54)	23 (46)	104	**0.962**	**0.327**
	No	69 (46)	27 (54)	96		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.10 Insurance of motorcycles

An attempt to find out the use of insurance by riders, Table 4.20 reveals that 81 respondents from Accra accounting for 54% of the sample and 23 respondents from Ashaiman also accounting for 46% had insured their motorbike. Out of the riders who admitted they were not under any insurance policy, 46% and 54% of respondents were from Accra and Ashaiman respectively. Per the results, it was noted that there is no statistically significant association **(chi-square value of 0.962, a p-value of 0.327)** between these two study areas. The primary purpose of insurance is to provide financial protection against physical damage or bodily injury resulting from traffic collisions and against liability that could also arise from incidents in a motorbike. Ideally, it would be better if all motorcycles are insured due to the hazardous and risky nature as described by Bekibele et al., (2007) and Simpson et al., (2014). Providentially, the reality indicated that majority of respondents in Accra were under an insurance policy with insurance companies like Enterprise Insurance, Best

Assurance, SIC, Glico, Vanguard Assurance, Star Assurance Quality Insurance, and others. The remaining respondents had no insurance policy, the reason was that several insurance companies do not pay the compensation due to riders in case of an accident. Okada operations are illegal in Ghana and as such most insurance companies hesitate to insure motorcycles that are not in the name of Limited Liability Company. Thus, many motorcycle taxi operators operate without insurance. Once again, it has been confirmed that some riders operate without insurance as indicated by Akinlade and Brieger, (2003); Ngim and Udosen, (2007). To the Okada rider, the insurance coverage, in reality, is useless as one of the conditions of the insurance is not to use the bikes for commercial purposes. According to a rider, the unwillingness ofinsurance companies to insure motorbike riders makes them take extra safety measures when riding, as there is no financial support in times of accidents. Conversely, uninsured riders who got involved in a fatal crash without a strong financial background tend to be a burden on their families which perpetuates the cycle of poverty.

Table 4.21: Roadworthiness of motorcycles

Legal issues perception variable		**Location of operation**				
		Accra	**Ashaiman**	**Total**	**Chi^2 square value (X^2)**	**P-value (5% level of significance)**
Motorcycle Roadworthy	Yes	89 (60)	19 (38)	108	**6.871**	**0.009**
	No	61 (40)	31 (62)	92		

Figures in parentheses are percentages while those not in bracket are respondent counts; * represent significant difference at $p < 0.050$

Source: Fieldwork, 2018.

4.4.11 Roadworthiness of motorcycles

As presented in Table 4.21, only 60% of the riders in Accra and 38% of the motorcycles in Ashaiman had roadworthy certificates as evidence of roadworthiness test by the DVLA. However, 40% against 62% of the riders from Accra and Ashaiman respectively did not have roadworthy certification. Although, from the results, a test for chi-square indicates clearly that there is no statistically significant association **(chi-square value of 6.871, a p-value of 0.009)** yet the number of riders with roadworthy stickers in Accra were more than those in Ashaiman. Regular renewal of motorcycle roadworthy means an automobile (motorbike) is in a suitable (mechanically fit) operating condition and meets the acceptable standard for safe riding. Approximately, more than half of the riders in Accra had roadworthy stickers to ride their bikes while the majority of the respondents in Ashaiman did not have. It was noted that certifiable motors for road use were high among riders because it is presented as a package when a new motorcycle is registered, but most of these cyclists refuse to renew once it expired and this confirms DVLA roadworthiness certification report for the second quarter in 2017. Also, riders criticised fees for roadworthy test and certification as just a means of revenue generation for the government. Riders, therefore, implied that they did not see the essence of the testing of their bikes. Also, riders complained of spending too much time at vehicles instruction yards for renewal. Motorbikes without roadworthy certification stand a higher possibility of crashing since there is no objective way of evaluating the riding condition (mechanically suitable) of the bikes.

4.5 Demographic factors and risk perception:

This section focuses on the demographic factors and the risk perceptions of Okada riders and how risk perception influences the rider's actions and inactions. The findings from the regression

analysis on the variables age, marital status, income level, ethnicity, ownership of motorbikes and locations are presented in Table 4.22 below. Post-estimation tests like the Linktest and Hosmer-Lemeshow were conducted to test for model specification and goodness-of-fit, respectively. The linktest, hatsq: P>|z|= 0.469, shows that the model is correctly specified. This means that we can, only by chance, find additional predictors that are statistically significant. As regards the goodness-of-fit test, the Hosmer-Lemeshow gave a score of Prob > chi2 = 0.2524, which is greater than 0.05 and indicates that the model is of good-fit.

Table 4.22 Logistic regression model for riskiness in Okada operation

Explanatory variable	Odds Ratio	Marginal effects	P>z
Age (Base = Below 35)			
Above 35	0.9066467	-0.0143581	0.819
	(0.38774)	(0.0628)	
Marital status (Base = Separated)			
Married	0.9299704	-0.0104373	0.871
	(0.4147)	(0.0637)	
Divorced	0.3883919	-0.165611	0.442
	(0.4777)	(0.2468)	
Ethnicity (Base = Akan)			
Mole Dagbon	1.444934	0.0543027	0.542

	(0.8731)	(0.09493)	
Ewe	1.415024	0.0515171	0.613
	(0.9725)	(0.1049)	
Ga-Dangme	0.2899124	-0.254636	0.098*
	(0.21673)	(0.14707)	
Foreigner	2.67473	0.1211663	0.426
	(3.3023)	(0.12969)	
Bike ownership (Base = Private owned)			
Relative	0.6514112	-0.061275	0.492
	(0.4061)	(0.0953)	
Work and Pay	0.5966092	-0.0755647	0.232
	(0.2581)	(0.06512)	
Sale	0.4659766	-0.1187984	0.309
	(0.309)	(0.13177)	
Income level (Base = 200-400)			
401-600	0.6333878	-0.058196	0.407
	(0.407)	(0.0691)	

601-800	0.7408937	-0.0364315	0.595
	(0.595)	(0.0685)	
801-1000	0.2667513	-0.2120953	0.024*
	(0.024)	(0.09327)	
Location (Base = Accra)			
Ashaiman	1.3746	0.0444719	0.517
	(0.517)	(0.06541)	
Constant	7.96166		0.007

Source: Author's computation, 2018.

N = 200

Hosmer – Lemeshaw Prob > chi2 = 0.2524

Linktest _hat: P>|z|= 0.047 _hatsq: P>|z|= 0.469

Robust standard errors in parentheses

The regression results in Table 4.22 above show the perceived riskiness associated with Okada operations in Accra and Ashaiman. Using Okada riders who are below 35 years as a reference, the perceived riskiness for riding Okada decreases for riders who are above 30 years. That is, Okada riders who are above 30 years are 0.09335 (1-0.906647) less likely to be involved in risky Okada operations compared to Okada riders who are below 30 years old and reduces the likelihood of

being involved in risky activities by 1.4 %. Although the age of the Okada rider and the perceived riskiness of Okada operation is statistically insignificant, a positive relationship exists between the rider's age and the riskiness in Okada operation. The age of the rider was re-categorized from its initial stage because of the issue of collinearity among the explanatory variables.

The marital status of the rider has effects on the perceived riskiness associated with Okada operation in the Accra and Ashaiman. It is observed from the table that Okada riders who are married relative to those who are separated are less likely to be involved in risky Okada operations. Using separated as the base reference, married Okada riders are 0.0700 (1-0.9299704) less likely to be involved in risky Okada operation. Okada riders who are divorced are approximately 17 % less likely to be involved in risky operations relative to riders who are separated. Both married and divorced riders are statistically insignificant in influencing the perception of riskiness associated with Okada businesses and a negative relationship exists.

Further, ethnicity or ethnic inclination of Okada riders is known to influence the Okada operations in Ghana. Using the Akan tribe as a base reference, the odds of engaging in risky Okada operations are 0.445 (1.444984-1), 0.415 (1.415024-1) and 1.6747 (2.67473-1) more likely for Okada riders who are of the Dagboni tribe, Ewe tribe and foreigners respectively. Although they are statistically insignificant, a positive relationship exists between the perceived riskiness of the Okada business and riders of Dagboni and Ewe descent and foreigners. Okada riders from Ga-Dangme are, however, statistically significant at 10 % alpha level with the perceived risk associated with Okada operation in Accra and Ashaiman despite the negative relationship. That is, the likelihood of engaging in risky Okada business is 0.710 (1-0.2899124) less likely for Okada riders of the Ga-Dangme tribe. This validates the notion that most Ga's are risk-averse.

Regarding the ownership of motorbikes, using motorbikes privately owned by riders as base reference, it can be seen that, holding all other variables constant, Okada riders who operate or use motorbikes owned by their relatives are 0.3486 (1-0.3485888) less likely to be engaged in risky operations relative to motorbikes owned and operated by riders themselves. This reduces the percentage of engaging in risky activities by 49 percentage points. Also, riders who use the motorbike on work and pay basis are 0.4034 less likely to engage in risky Okada business compared to their counterparts who owns the motorbike. This reduces the percentage of involving in risky operations by 8 percentage points. Riders using the motorbike for daily are also less likely to involve themselves in risky Okada businesses than Okada riders who owned the bikes. A negative and statistically insignificant relationship exists between bike ownership and the perceived riskiness associated with Okada operation.

The income level of Okada riders plays a significant role in determining the level of risk associated with their operations. From the regression model, above, it is observed that, relative to Okada riders who earn a monthly income of about ₵200 to ₵400, Okada riders earning between ₵401 to ₵600 reduces the likelihood of involving in risky activities by 0.2591. Okada riders earning between ₵601 to ₵800 are also less likely to engage in risky operations than their counterpart riders who earn between ₵201 to ₵400. There is a negative and statistically insignificant relationship between the aforementioned income earners and the perceived riskiness in Okada for commercial purposes. Income earners within the ranges ₵801 to ₵1000 decreases the likelihood of Okada operators involving in risky activities. Using the marginal effect, Okada operators with income level ranging between ₵801 to ₵1000 are approximately 21% less to be involved in risky operations. Unlike previous income ranges, Okada earners within the ₵801 to ₵1000 ranges are

statistically significant with the perceived risk in Okada operation. However, a negative relationship exists.

Another variable that influences the perceived risk associated with Okada operation is the location of the Okada riders. The regression model above shows that, with Accra serving as the base reference for location, Okada riders from Ashaiman are more likely to be involved in risky activities compared to their counterpart operators in Accra. The riskiness level of Okada riders increases by 0.3746 that those in Accra. Similarly, using the marginal effects indicates that the increase in the risk is going to be approximately 5%. Thus, Okada riders from Ashaiman are more prone to risk in the businesses than Okada operators from Accra.

Objective 3:

4.6 The use of helmet and other safety protective gears.

This analysis sought to measure the aggregate of how many of the prescribed protective gear was used regularly by riders. It served as a representation for safety adherence as it also cross-checks the responses of riders on the use of safety gears. Therefore, to achieve the objective three (assess the use of helmet and other safety protective gears), a checklist was prepared to complete the task. Although there are many protective gears for safe riding, however, the use of helmet, gloves, safety boots, knee pads, elbow pads, shoulder pads, and safety jacket is required by the laws of the land hence the selection of same apparels for the study.

Table 4.23: Observational checklist for Accra and Ashaiman

Items	**Accra**		**Ashaiman**	
	Frequency	%	Frequency	%
Helmet	20	100	15	100
Gloves	7	35	1	7
Safety Boots	15	75	5	33
Shoulder Pad	0	0	0	0
Knee Pad	0	0	0	0
Elbow Pad	2	10	0	0
Safety Jacket	13	65	9	60

Source: Fieldwork, 2018.

From the observational study, it was noticed that the wearing of the helmet was very high among riders in both Accra and Ashaiman. All riders were seen wearing helmets. Unfortunately, out of the 20 riders observed in Accra, 7 were spotted in gloves while only 1 rider was seen in gloves out of the 15 riders who were under examination at Ashaiman.

Similarly, the use of safety boots among riders in both study locations was low as riders in Accra attained 15 marks while Ashaiman riders attained 5. Again, it was observed that the use of shoulder pad, knee pad and elbow pad was extremely low with only 2 riders spotted wearing elbow pad in Accra. Finally, the usage of safety jacket was relatively higher with 14 and 9 riders seen in Accra and Ashaiman respectively.

4.6.1 Helmet Usage

Bachulis et al., (1988) studied the records of motorcyclists admitted to hospital and found a higher percentage of deaths in riders without helmets compared to riders in helmets. Refusal to wear a

helmet has been a significant factor for the greater severity of injuries in motorcyclists' crashes (Ameratunga, et al., 2006). Although helmet usage saves and reduces injuries in accidents, some motorcyclists argued that helmets use gave a sense of false insecurity that blocked their sight and hearing making riders less alert to danger.

However, in Ghana, road traffic Act 2004, Act 683 guarantees the compulsory use of standard protective gears and the extensive education of its usage by the National Road Safety Commission (NRSC). Therefore, the introduction of 'ARRIVE ALIVE' campaign and Road Safety Education (RSE) by the NRSC emphasises the use of the helmet and, in spite of that some riders have decided not to use them.

From the observation, perhaps the NRSC campaign has been very useful. It was discovered that, out of the observed riders in both Accra and Ashaiman, all 35 riders were seen in helmets and even had extra ones for pillion riders. Again, it was noted that riders normally go in for helmets which are fully covered to prevent dust, dirt, road debris, and sunshine to give the riders a clear vision. The use of a helmet is common as riders want to make the Okada business attractive to both the general public and the government in order to facilitate the legalisation of their activities. In addition, most users had a high-risk perception and considered the wearing of the helmet as an intelligent, effective and proper means of guaranteeing and saving their lives in case of accidents. Okada has been described as highly risky business by many researchers, but due to the high usage of helmet among riders, its possible injuries will be reduced in case of unexpected crashes or collisions. This observational study has debunked the assertion by Agyekum-Boamah (2012) that most riders ride without helmets. This signifies that rider's perception of safety has improved over the years. Again, the above information indicates that riders have a high-risk perception of the dangers of having a head injury accident as it could lead to instant death.

4.6.2 Gloves usage

No matter how experienced a rider is, protective gears such as gloves are always needed. This is because the hands are a very important part which leads to successful and safe riding. Riding with padded hands protection gloves continue to bring ease and prevent hand numbness (damage and irritation) of a bike that falls while riding. Again, the use of gloves helps to obtain a firm secure grip of the bike to avoid sweaty palms and also keep the rider warm and less cold during rainy and cold weather (Simpson et al., 2014). Besides, gloves prevent the feeling against vibration from the motorcycles.

The use of gloves is overlooked and are less patronised by most riders since law enforcers have not ensured strict compliances but have made it optional. Despite its importance, data from field observations indicated that 7 riders were seen wearing gloves in Accra and 1 in Ashaiman. The few seen in gloves were those classified as fashionable and stylish riders. It can be concluded that most of the riders had a low-risk perception on the use of gloves. Although Accra had a higher figure as compared to that of Ashaiman, the use of gloves is low within the study area. This implies that injuries in motor accidents will be severe and, therefore, much education should be given to riders. However, most riders complained gloves produced excess heat and made them feel very uncomfortable, and the police who are the law enforcers were not interested in checking the usage of gloves by riders.

4.6.3 Safety boots usage

Protective boots are specially designed to provide comfort and protection for riders. Boots reduce the risk of injuries compared to wearing of any shoes, sneakers or slippers as the wearing of boot reduced ankle injuries by 53% (De Rome et al., 2011). Five (5) out of fifteen observed riders in Ashaiman were spotted wearing sneakers and slippers instead of wearing safety boots while 15

riders in Accra were seen in a safety boot. This shows that riders in Accra had a high-risk perception in wearing protective boots as compared to riders in Ashaiman. Riders who were not seen in boot complained about the price of boots being expensive and also called on government, stakeholders, and benevolent individuals to come to their aid with protective equipment which will help save their lives in case an unforeseen accident occurs. Although the pleadings of these riders were not reasonable, most notably since they are operating freely without paying any tax to the state, it would be prudent for state institutions like the NRSC, MTTD, and DVLA to intensify education for riders and provide protective gears for them if possible because if compared to vehicular drivers, riders are more likely to die or attain severely injured in crashes (De Rome et al., 2014). Also, the police could enforce the use of other protective gears apart from the helmet which they implement currently

4.6.4 Shoulder pad, elbow pad, knee pad usage

Motorcyclists were significantly less likely to be admitted to the hospital if they fell wearing motorcycle shoulder pad, knee pad and elbow pad. Again, it was noted that out of the total number of riders observed in both Accra and Ashaiman, an infinitesimal number of riders in Accra were seen in Shoulder pads, Elbow pads, and Knee pads while none was spotted in Ashaiman. This shows clearly that the use of protective pads was not common among riders in both locations. When motorcyclists were engaged, they explained that wearing protective pads was foreign and would not best fit our local setting. Additional information obtained was that most protective gears brought to the country did not last long due to the hot climatic conditions; hence purchasing them were baseless. This calls for a quality control system to check protective clothing imported into the country. Unprotected riders are highly at risk likely to increase the death toll on our roads.

4.6.5 Safety jacket usage

The usage of the safety jacket was relatively high per the field report. Most riders, as observed, were seen in either safety jacket or heavy cloths with the idea of protecting themselves in case they fall. However, a variation was seen among riders. Some insisted they preferred reflective vest to safety jacket which feels lightweight and more comfortable. The reflective jacket helps us to be easily identified and seen by other road users at dawn (early morning) and later in the evenings (Lahrmann et al., 2015). This illustrates that riders know the essence of wearing safety jacket but feel reluctant to comply with it as a safety measure.

To conclude on the observational field survey, it demonstrates that motorcycle protective clothing such as helmets, gloves, safety jackets, boots, and others are likely to reduce the severity of injury in accidents and crashes significantly. Nonetheless, to compare the responses of riders when asked about the use of safety gears, the field observation results demonstrate otherwise. This means that riders have a high-risk perception of the use of protective gears since it guarantees their safety yet, its usage is less.

Objective 4:

4.7 Stakeholders role in ensuring the safety of Okada operation

4.7.1 Laws governing motorbike usage

Although it is public knowledge that the use of motorbike for commercial purposes is banned, yet some riders have persistently used a motorcycle for commercial purposes (Oteng-Ababio and Agyemang, 2015). To the Okada rider, the use of motorcycles for commercial purposes is a bread and butter affair neglecting the regulations governing the use of motorcycles in the country. An interview with some state institutions on the position of the law emphasised that;

> *"The law regarding the use of motorbikes in Regulation 128 of the L.I do not permit a motorbike to be used for commercial purposes. According to the law, there is nothing like Okada. Since in Ghana motorbikes are not used for commercial purposes, riders who do so are arrested and charged under Regulation 128 which can further lead the culprit to be put before the court"* (*Chief Inspector of the police Greater Accra regional MTTD, Accra).*

The ban of Okada operation has affected the perception of most riders in the sense that they are always in haste to avoid arrest (Wilde, 2006). These riders neglect their safety with a highly driven money mentality which has a deeper economic implication on their livelihood. The results of this study have proven that most of these riders are in the Okada business because of unemployment. For this reason, the laws governing Okada will remain useless until there is an amendment.

With Okada operators, they shared a conflicting view in the legal regime of the use of motorbikes for commercial purposes. One Okada rider suggested the laws should be changed and he reported that;

> *"There is a group called the Coalition of Okada Legalisation in Ghana (COOLIGHA) whose role is to spearhead and facilitate the legalisation of the Okada. Several petitions have been sent to parliament, the seat of government, and even the media houses to make the general public to understand and accept the work we are doing. The association believes that, as at the time Okada laws were passed, Ghanaians were not sure what Okada was, but today it has come to stay hence there must be an amendment". (The secretary of COOLIGHA, Ashaiman).*

This statement made the by the leadership of riders shows how determined they are to cause a change in the laws governing Okada. The author believes Okada laws should be changed to help

facilitate the movement of commuters. Also, the consequence of the amendment of the law would result in a lower rate of motorbike accidents as riders will have the peace of mind to operate devoid of any harassment or whatsoever from any law enforcing agency.

On the contrary, comments from a lawmaker showed that no effort is being made to amend the said laws and an interview recount that;

> *"As it stands now, Okada still remains illegal and using the motor for commercial purpose are against the law. For now, there is no law being prepared by the Ministry of Roads and Transport neither has parliament received any bill from the Executive organ of government to legalise Okada". (Chairman for Parliamentary Committee of Transport, Accra).*

The account given by the parliamentarian also suggests how the government is determined to maintain Okada laws and reluctant in amending irrespective of the high rate of accidents on our roads.

4.7.2. License and Bike registration

No person shall drive a motor vehicle on the road unless the persons hold a valid professional, private or learner's driver's license authorising the individual to do so Act 683 (2004) and L.I 2180 (2012). Likewise, a motorbike has to be registered with a valid plate, and certificate of roadworthiness carried on the vehicle. The law demand for the use of a standard motorcycle and according to an officer from DVLA, he recounted that,

> *"The rider is supposed to be tested and given a specific permit which is license category 'A' that will enable the rider to use a motorbike. Also, we ensure all motorcycles are roadworthy before it is registered. We also make sure the bike has the necessary features*

such as the mirror, lights, and even check if the breaks are intact". (Director for Vehicle Inspection and Registration DVLA, Accra).

From the field observation, it was realised that almost all the bikes spotted were registered and had roadworthy certification stickers, but as to the validity of it could not have been determined by the researcher. It can, therefore, be concluded that most bikes had registered plates and as such, it is presumed to be mechanically fit for the road, and this confirms a report from the DVLA (2016).

4.7.3 *Law enforcement*

The institution responsible for the implementation of traffic regulations is the Police MTTD and a communique from the department during an interview narrated how proactive the police has been in maintaining the law. He recounted that:

> "*The police promise to continue enforcement of the law and arrest culprits, while more education will be given the general public to avoid patronising Okada services through advertisement on television and radio stations for people to understand the risk involved". (Chief Inspector of the police service Greater Accra regional MTTD, Accra).*

Although there is a strong police force to combat the Okada operation, the counter-reaction from riders are very massive devising all sort of measures to escape law enforcers and resist arrest as well. Invariably, the challenge of enforcing the laws may be influenced by the general lack of trust of policing in Ghana, as police corruption has undermined their ability to enforce the law (Konkor et al., 2019)

4.7.4 *Measures to ensure safety on our roads*

Come to think of the safety of Okada riders and pillion riders; it is required of all motorists to put on specific protective apparels with the idea of serving as safety guarding apparatus which will

help riders survive in accidents (Akaateba et al., 2014). Per the laws governing riding, an officer from NRSC stated that;

> *"Riders are also expected to wear protective and reflective apparels like knee cap, elbow caps, riding boots, gloves, and most importantly the use of helmet". (A 29-year- old NRSC official, Accra).*

With the stipulated laws and as required of every rider, state institutions like the Police, DVLA, and NRSC join hands to ensure these laws are obeyed to help maintain some level of sanity and safety on the roads. It was recounted from a director from the DVLA about how they ensure the laws are observed and he stated that;

> *"We equally conduct checks with the police MTTD and NRSC on the road to verify valid licenses, bike registration plates, and roadworthy stickers and encourage riders who do not meet this standard to do so, although most riders do not compile with the renewal of roadworthy certification stickers".* (*Director for Vehicle Inspection and Registration DVLA, Accra).*

This shows that there is a cordial rapport among these institutions in executing their mandate. Unfortunately, to Okada riders, safety in their operations is something they perceive differently, and their attitude toward it is very lackadaisical. An interview recounted that;

> *"We use helmets but not gloves and jackets. The weather is too hot for such safety apparels. We depend on God for our protection because he has the final say. However, I mostly advise my members to be very careful since most drivers hate us. If you do not have two helmets, you would not be allowed to pick up pillion rider. But irrespective of this small effort we make, our lives are in the hands of the God". (A 48 -years-old station, Ashaiman).*

Further discussion with riders revealed that God sanctions all deaths, including motorbike accidents. With this perception, most riders put in less effort to ensure their safety and this call for intensifying checks from the police.

4.7.5 *Institutional perception about Okada operations*

Many individuals and various cooperate agencies and institutions have called for the legalisation of Okada business, although the effort to change the legal status lies in the decision of parliament. To assess the institutional perception and position on the use of Okada, it was recounted that;

> *"The police believe and will continue to propagate that Okada should not be legalised since causalities keep on increasing on a daily basis. We record more than 30 causalities every week". (PRO of the Greater Accra regional police MTTD, Accra).*

Meanwhile, some other state agencies hold different views and suggested the laws should be amended. It was noted that;

> *"The commission believes that Okada operation should be regularised in both the cities and the rural areas". (A 29-years-old NRSC officer, Accra).*

The lawmakers of our land had a conflicting view to the legalisation of Okada as seen in the comment below:

> *'Parliamentarians whose constituencies fall within the major cities are fighting against Okada legalisation due to the continuous increase of accidents while those in the rural areas are equally propagating for its legalisation with the excuse of the poor nature of roads leading to rural areas". (Chairman of Parliamentary Select Committee on Transport, Accra).*

***4.7.6** Institutional challenges*

There were some operational challenges confronting various state institutions in the combating of Okada, and the concerns of some institutions were interference. An officer intimated;

> "*There are interference and intrusions by all manner of people in society pleading on behalf of riders. This is seen in situations where a rider is arrested for committing an offence which is so glaring but we tend to have the different calibre of people in the society coming to their rescue. For example, political leaders, chiefs, religious leaders, senior security officers, and others. (PRO of the Greater Accra regional police MTTD, Accra).*

With this reaction from the police, it means there is favouritism in the system, and this will make the fight against Okada very difficult and hectic. Other institutions equally had their reservation in implementing their mandate of promoting the excellent driving standard. Comment from the DVLA official expressed frustrations about how the public provide false information and inadequate security features number plates. He indicated that;

> *"Applicants fail to provide accurate information, especially house numbers, phone numbers and clear picture for easy identification. Again, the current licensing plates do not have enough security features making it easy for people to fake and make sub-standard plates for use". (Director for Vehicle Inspection and registration DVLA, Accra).*

Objective 5:

4.8 The perception of other road users about the operation of Okada

Okada riders perceive and consider the work they do to be very important and has positively affected many pillion riders and others who patronise their service in various ways. To the general public, some perceive Okada services to be a straightforward and fast means of one getting to their

destination on time while others perceive otherwise considering the risky nature of it. Indeed, Okada operations have affected the lives of many in both negative and positive ways. In an interview, a pedestrian called for the legalisation of Okada operations, and it was recounted that;

> *"In my view, Okada is a good alternative means of transport, but poor regulations of the transport industry have negatively affected the efficiency of Okada business. To me, Okada should be legalised". (A 28-year-old pedestrian, 37 Accra).*

On the other hand, some other road users had a different perception of Okada operation. An interviewee suggested that the laws governing motorcycle usage should be maintained and he expressed his thought in the following words;

> "*The numerous crimes committed with bikes (Robbery) haveput Okada user in a position where they are neither regarded nor respected. Simply put, their activities are rather very disturbing because it is causing more harm than good. Though Okada has its positive side that is getting delivery done on time, its negative side is that much life and properties are endangered. Okada should not be legalised since it too risky. I will humbly suggest the laws governing Okada should be maintained, and the police should tighten their strategies in dealing with Okada riders". (A senior customs officer [private driver], Airport residential area, Accra).*

Again, another commuter shared similar concerns that the laws of a motorcycle should not be changed and it was captured that;

> *"Okada operation has been very worrisome, because riders do not obey road traffic regulations and have also taken over our business. I pray the government to hear our cry and ban Okada forever". (A 42-years-old commercial driver, Ashaiman).*

4.8.1: Perception of Okada users and non-users

Some commuters perceive the use of Okada differently irrespective of its benefit or danger it poses on the user. An interviewee highlighted the importance of Okada and responded that;

> *''I am a regular user of Okada. I use Okada because I am mostly in a hurry to catch up meeting on time and I always request for a helmet'' (A 28-year-old pedestrian, 37 station).*

On the other hand, another interviewee also gave reasons why he would not patronise the services of Okada. He stated that;

> *''I will not pick Okada services at the expense of a taxi or trotro because the risk involved is too high. The government should arrest all the riders and seize them from operating. Ashaiman people like to use Okada because they think it's cheaper compared to lorry fares. These pillion riders care less about their safety".(A 42-years-old commercial driver, Ashaiman).*

4.8.2: Attitude of Riders

Road users perceive the attitude of riders differently, and according to a commuter, the actions and inactions of most riders are dishonourable as she highlighted that;

> *"I see Okada riders in Ashaiman as very rude, careless, notorious, terrible and do not care about the safety of pillion riders and other road users. Riders always compete with vehicles and, above all, ride on top speed. Okada endangers our lives, and I am always scared to cross the road because most riders are careless".(A 26-years-old lady, Ashaiman main lorry station).*

On the same issue of the attitude of riders, another interviewee voiced the same frustration about the bad manners of riders and expressed his view in the following words:

''Okada riders are tough to control and sometimes if they offend you, they will abuse you verbally, and on a bad day, the rider will try to beat you up instead of apologising. The government should arrest all the riders and seize them from operating". (A 38-years-old seller, Zenu market square).

4.9 Conclusion

Generally, it can be said that the public has a high-risk perception of safety and do not have a good impression of Okada as a safe means of transport. Moreover, operators are seen as rude and disrespectful as highlighted by Oteng-Ababio and Agyemang (2015). Most interviewees suggested Okada is causing more harm than good, but the few commuters who patronise Okada services do so to escape the hectic traffic congestion in the city and are always wanting to get to their destination on time.

4.10 Chapter Summary

This chapter first examined the demographic characteristic of Okada risk, and possible inferences were made on how they influence Okada operations. It also examined the risk perception and safety adherence of riders to traffic rules and regulations. In general, the majority of respondents had a high-risk perception and exhibited a high level of knowledge about the use of safety gears. For example, wearing of helmet and provision of extra for pillion riders were a priority of every rider.

On the other hand, few riders exhibited carelessness when riding with the excuse of preventing the arrest from the police and also met the demand of pillion riders who wanted to arrive on their destination on time. As Africans, superstitious belief is rooted in all our engagement not overlooking riding. However, some respondents admitted using magical rings and other magical

materials in protecting themselves from accidents. Once more, the regression analysis showed that it was likely for riders in Ashaiman to be involved in accidents compared to their counterparts in Accra. The next chapter draws the curtain to the study.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter contains a summary of the study with the topic 'The perception of risk and its implications on the operations of Motor Taxi (Okada) of the Greater Accra region. Based on the presentation and analysis of data in the previous chapters, it draws conclusions founded on the results, theoretical and conceptual frameworks that underpinned the focus of the research. The chapter further concludes with recommendations relative to the set objectives of the study.

5.2 Summary

The main aim of the study was to understand motorcycle riders' perceptions of risks and how this knowledge feeds into their attitudes and practices towards taking safety precautions in their activities. The specific objectives were;

I. To ascertain the socio-demographic characteristics of Okada operators,
II. To examine how Okada operators, perceive risk,
III. To assess the use of helmet and other safety protective gears.
IV. To analyse the role of stakeholders in ensuring the safety of Okada operations.
V. To determine the perception of other road users about the operations of Okada.

To achieve the objectives, some theories were reviewed. The Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB) focus on theoretical constructs concerned with individual motivational factors as determinants of the likelihood of performing a specific behaviour. The TRA and the TPB were theoretical frameworks employed in the study, and it has proven quite effective in helping throw much light on the objectives the study sought to achieve.

Again, the versatile nature of the theories and its acceptance by a section of researchers about risk perception in transport studies have strengthened its choice. These theories were modified with the introduction of a new variable thus: "Barrier'' which sought to help give a clearer and meaningful understanding of the study.

About the methodology, both primary and secondary sources of generating data were used. Concerning the primary data, the study adopted the embedded mixed approach (qualitative and quantitative) methods to gain a comprehensive understanding of the issues examined. Primary data were obtained from a well-structured questionnaire, interviews and in-depth interviews from relevant stakeholders and state institutions. Likewise, secondary sources of data were obtained from books and journals on the internet, and yearly reports form relevant state institutions. Snowball sampling (chain-referral sampling) method was employed in selecting 200 riders from sixteen different turfs.

With regards to the initial research objectives formulated for the study, the following findings and observations were made:

5.2.1 Demographic characteristics and location of riders

The study has revealed that, with the exception of the educational level attained by riders and the monthly earning of Okada riders which were **chi-square value of 11.88, a p-value of 0.018*, and chi-square value of 12.27, a p-value of 0.007*** respectively, there was no scientifically significant association between rider's location and sex, age, civil/marital status, ethnicity, and the ownership of bike. Riders in Accra had attained a higher educational level with a majority of 40% and 45% being basic and SHS leavers and 3.33% being tertiary graduates. On the other hand, those in Ashaiman had lower levels of education as 66% had basic level education. From the quantitative analysis on the educational status of riders, the imbalance in favour of riders in Accra will probably

influence choice of riders when expected to make the best of decisions to ensure road safety. Okada riders in Accra were making a good monthly income as compared to those in Ashaiman because of the courier/delivery services riders in Accra are involved. It was noted that Okada services in the city of Accra is more expensive compared to Ashaiman.

The Okada business is predominately reserved for males due to the risky nature. However, it is established that the majority of the riders were in their youthful age and fall below 35 years. This confirms a previous study by Oteng-Ababio and Agyemang (2012). The majority of riders being youthful implies that there is a high tendency for Okada accidents to increase since young people are likely to tolerate risk for comfort and underestimate safety, as noted by Boholm (2003).

With the marital status of riders, it revealed that 63% being the majority of riders were married in both study areas. It was followed by 35% of the respondents being single and 2% divorced. The marital status of riders is believed to affect their risk perception since most of them were breadwinners and as such, took safety precautions when riding. However, results show most riders were in the business because they needed to cater for their families and had the backing of these family members serving as a source of motivation (subjective norm) to riders.

The relationship between the two study areas with ethnicity shows that the Mole –Dagbani's (five northern regions) were the dominant group among riders making up to 53%. The Mole Dagbani's dominated because it has been established that the usage of the motorbike is a common practice in the three northern regions and eventually, every household owns a bike and this was confirmed by Ackaah and Afukaar, (2010). Riders, therefore, enrol themselves into Okada business as they migrate down south and are unemployed. Surprisingly, a few foreigners were spotted in the business and therefore ought to be checked.

Similarly, there was no statistically significant association (**chi-square value of 3.44, a p-value of 0.328**) between the bike ownership and the location of riders. A majority of riders, 51.50%, owned their motorbikes while other riders used their bike based on work and pay terms (hire purchase instalment), and weekly sales terms. It was discovered that most riders got to own bikes after they had successfully paid for the work and pay policy plan.

5.2.2 Risk perception

The outcome of this study has demonstrated that most riders operate without valid licenses in both study areas and the finding corroborates that of an earlier study by Akinlade and Brieger (2003). Indirectly, unlicensed riders do not have any formal training and lack the needed knowledge and skill to ride which is possible to lead to high fatality and injuries on our roads. Again, the findings of this study show that most riders in Accra had insurance policies which provided financial support to riders in times of accidents. On the contrary, the majority of motorists in Ashaiman had no insurance policies, and there is no statistically significant association **(chi-square value of 0.962, a p-value of 0.327)** between these two study areas. Evidence from the results indicates that the majority of riders in Accra had roadworthy certificates, while the majority of their counterparts in Ashaiman did not have any. It was realised that most motorists do not renew their roadworthy certificates once it expires. Again, the chi-square test indicates that there is no statistically significant association **(chi-square value of 6.871, a p-value of 0.009)** between the study areas.

Admittedly**,** most riders knew about the illegal nature of the Okada business; nevertheless, the majority of riders from both study areas called for the amendment of the law to enable them to operate freely. Again, there is no statistically significant relationship **(chi-square value of 3.639, a p-value of 0.030)** between the desire and demand of these riders in both areas. The presence of law enforcers scared and prevented Okada riders from operation as majority indicated as riders

knew the illegal nature of the business. Okada riders perceive the law enforcers as corrupt and were using them to make money. Almost every one of them revealed that they had experienced arrest from the police at a point in time.

Adherence to road safety rules is essential in reducing road accidents. Even though the majority of riders claimed to adhere to road traffic regulations in both study area, the researcher's observation proved otherwise. The position and the observation of the author are strengthened by studies conducted by Oteng-Ababio and Agyemang (2012, 2015) and Wilde (2006) which empirically explained how riders failed to pay attention to traffic rules and regulations. The finding from the quantitative scores and the observation have demonstrated that riders have a high-risk perception of safety but did not adhere to it. However, there is no statistically significant association **(X^2= 12.040, p= 0.007 chi-square value of 12.040, a p-value of 0.007)** between riders of Accra and Ashaiman.

Based on the logistic regression model test, it was deduced that;

i. Okada riders from Ashaiman are more prone to risk compared to riders in Accra.
ii. Okada riders who are above 30 years are less likely to be involved in risky riding as compared to riders who are below 30 years old.
iii. Married riders are less likely to be involved in risky Okada operation.
iv. Okada riders who used motorbikes owned by their relatives are less likely to be engaged in risky operations as compared with riders who owned their bikes.
v. Okada riders earning between Ghc ₵601 to Ghc ₵800 are also less likely to engage in risky operations than their counterparts.

vi. Using the Akan tribe as a base reference, the odds of engaging in risky Okada operations are 0.445 (1.444984-1), 0.415 (1.415024-1) and 1.6747 (2.67473-1) more likely for Okada riders who are of the Dagbon tribe, Ewe tribe and foreigners respectively.

5.2.3 Observational survey

Analysis from the checklist in the previous chapters revealed that the majority of riders understand and know the essence of wearing protective gears. However, helmet usage was widespread among riders, although same can not be said for other protective gear (boots, gloves, shoulder pad, knee pad, and elbow pad) as recommended by the law. It can then be surmised that the use of protective gears among riders is low even though they perceive Okada operations to be risky.

5.2.4 Perception of state institution and other road users

It appears that most of the state institutions responsible for ensuring road safety face strong interference from top government officials, leaders in the security services, and other influential individuals in the society thereby limiting them from performing their respective duties. Again, ensuring road safety standards must be interconnected among state institutions, but it seems that there is limited cooperation among them in the enforcement of these standards. Also, these state institutions lack the needed logistics and the human capacity to curb high road traffic accidents on our road.

On the other hand, the impression expressed by other road users seems to be biased depending on the interest of the individual. For example, commercial drivers believe there is stiff competition from Okada riders in search of commuters and, as such, wanted the laws banning Okada strictly enforced. Again, travellers who perceive Okada to be dangerous believe Okada is not a safe means of transport while others who do not perceive same believe Okada is a fast means of transportation,

therefore, should be legalised and regulated by the state. During the study, allegations were levelled against law enforcers by some road users, although the study could not affirm it, it suggests that some police personal owned motorbikes operating as Okada, hence they hesitate in enforcing the laws.

5.3 Conclusion

From the various variables used in testing for risk perception among riders in both Accra and Ashaiman, it can be confidently deduced that the majority of Okada riders had a high-risk perception about their operations and needed to be motivated to do the right thing. It is, therefore, necessary for stakeholder institutions such as DVLA, NRSC, and the Police MTTD to intensify road safety education for the benefit of riders and users of these motorcycles. Also, it has been established from this study that the unlawful nature of Okada operations has much negative influence on the mindset of most riders affecting their practices, attitudes, and behaviours toward road safety.

There is no doubt that any society without laws breeds a chaotic environment, most notably when rules and regulations are not adhered to. However, it is also true that laws are made by man for man and, therefore, the laws can be changed by man for the convenience of man. The law banning Okada operation in Ghana is needless in the face of reality, i.e. difficulty in policing, high demand for different mobility options for many distressed commuters, unfavourable supply dynamics and the hectic traffic in the city. Therefore, commercialisation of Okada should be looked into for possible change in the laws on it so that it becomes a safer means of transport.

Clearly, Okada transport is not only filling a gap in the prevailing urban transport system but economically, it is improving productivity in the city by overcoming the costs imposed on the urban economy by heavy traffic congestion. However, Okada riders should be under one umbrella

where their activities would be monitored and regulated, notwithstanding the fact that it can be a source of revenue for the government. On the other hand, if Okada operations cannot be legalised per reasons best known to state authorities, then there must be a reconceptualization of the problems confronting the transport sector and development a comprehensive public transport devoid of unnecessary delays such as the Bus Rapid Transit system and building of flyovers in the city to reduce traffic congestion (Starkey and Njenga, 2010).

Furthermore, the inconsistent usage of protective gear was evident by motorcyclists, and this could be attributed to the weak enforcement by the law enforcers. Even though most riders had the requisite gears to ride, some riders had a lackadaisical attitude toward wearing of the gears due to the hot and humid climatic conditions. Again, all stakeholders in road safety should jointly intensify education on the usage of safety gears and pursue rigorous enforcement on all road types, especially at locations outside the CBD to improve safety in GAMA. This calls for the implementation of policy decisions related to the use of motorcycle protective clothing. However, at this stage, it's recommended it is made mandatory for all riders. Nevertheless, culprits should be arrested and put before the court to ensure clarity in the system. Finally, this work will be wrapped up with a quote which states that;

> *"Road traffic crashes and their resultant casualties do no result from fate or destiny. They are the products of circumstances and behaviours, thus lend themselves to prevention and mitigation". (Kofi Annan, n.d, Former United Nation Secretary-General)*

5.4 Recommendations

The results of the study have revealed many issues concerning the use of Okada transport services within the study areas (GAMA). Based on these findings, the recommendations below are aimed at policymakers to address the various challenges that usually affect this type of public transport

provision.

I. There must be an expansion in road infrastructure where traffic congestion would be eased and the creation of more motor lanes for safer riding to adequately respond to the rapid urbanisation process. Government and cooperate bodies are to invest more in industrialisation and the establishment of jobs to absorb unemployed teeming youth to deter them from entering into dangerous ventures like Okada riding.

II. Although Okada is illegal, it has been accepted by some sections of the public as a means of transport. It is, therefore, recommended that the Driver and Vehicle Licensing Authority (DVLA) should be tasked to establish riding training schools (Nationwide) where Okada riders who apply for license category 'A' would be trained to be more road safety conscious to help reduce crashes on the roads. Riders who are already on the roads should be given refresher courses to sharpen their sensitivity to risk and enhance their skills towards road safety.

III. As most Okada riders attest to regular maintenance of their motorcycles, there is a need to educate them about the culture of maintenance to equip them to ensure that they maintain their motorcycles properly to be fit for the road. Also, for an effective increase in the safety of motorcyclists, road safety cannot be the sole responsibility of the government; civil society organisations together with Road Safety Ambassadors (RSA) should cooperate to help create awareness about road safety, especially in the use of helmets, as they could help disseminate information at the grassroots level. Again, state institutions mandated to ensure road safety should work together and be proactively in performing their duties.

IV. The perception of associating spirituality as a causality of accidents should also be addressed. If individuals believe that the occurrence of an accident is out of their control, then it stands to reason that such an individual would make little or no effort towards his

or her safety. There is the need to educate riders and if possible, engage traditional and religious leaders to educate their members to understand that indeed, accidents are primarily caused by reckless road behaviour.

V. A law must be enacted for each motorcycle sold to include at least two helmets, gloves, safety jacket, knee pad, shoulder pad, and elbow pad, and usage must be mandatory for all riders. Also, consideration could be given to safety gears imported into the country by ensuring these items enjoy some tax waivers or if possible tax-free.

5.5 Area for further research

The present study focused on the perception of risk and its implication on the operations of riders. Future research should examine the association, if any, between the perception of using protective gears and occurrence of accidents where answers would be sought from research questions such as: What is the importance of using protective gears? and Would the use of protective gears save riders life during an accident? However, it is recommended that the scope should be more comprehensive and on large-scale. Besides the above, it is also recommended that the association between motorcyclists' crash risk and usage of protective clothing in hot weather be investigated. Finally, the adverse implication of poisonous gases from vehicles on the health of riders could also be investigated.

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APPENDIX A: CHECKLIST OF PROTECTIVE GEARS FOR OKADA RIDERS

(ACCRA)

ITEMS	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R 10	R 11	R 12	R 13	R 14	R 15	R 16	R 17	R 18	R 19	R 20
Helmet																				
Gloves																				
Boots																				
Shoulder Pad																				
Knee Pad																				
Elbow Pad																				
Safety Jacket																				

Note: / = Usage of protective gears *X =Non-Usage of protective gears*

APPENDIX B: QUESTIONNAIRE

UNIVERSITY OF GHANA

DEPARTMENT OF GEOGRAPHY AND RESOURCE DEVELOPMENT

TOPIC: THE PERCEPTION OF RISK AND ITS IMPLICATIONS ON THE OPERATIONS OF MOTOR TAXI (OKADA) OF THE GREATER ACCRA REGION.

INTRODUCTION

This questionnaire is designed strictly for academic purposes. I am Anthony Nana Appiah, a student at the University of Ghana, Legon, Department of Geography and Resource Development. This project is a prerequisite for the award of my master of philosophy from the same department. The objectives of this questionnaires are to address the socio-demographic profile of Okada riders, the attitude, knowledge, belief, and behaviour of Okada operators in everyday risk and the attitude of Okada operators toward helmet other protective gears usage and the role do stakeholders play in ensuring road safety with regards to Okada operation. Averagely, a respondent will use 3 to 5 minute to complete the questionnaire. Respondents are assured of total confidentiality and anonymity. Counting on you for your cooperation and support. You are kindly requested to select options you find appropriate (tick √) or circle the correct answer. Thank you.

SECTION I: Risk Perception

	GENERAL KNOWLEDGE ON RISK PERCEPTION	YES	NO
1	Do you have a valid riders license		
2	Is your bike insured		
3	Do you have a valid roadworthy		
4	Do you charge more than 5 cedis per trip		
5	Does the distance and hour of the day determine the price		
6	Is the amount you earn worth the risk and danger you are exposed to		
7	Have you ever had an accident when riding		
8	Has any of your fellow riders had accident before		
9	Has it scared you from operation/ riding		
10	Okada operation is illegal, are you aware		
11	Does the heavy presence of Police scare you from operation		
12	Have you ever been arrested by the Police		
13	Upon your arrest, were you prosecuted		
14	Do you believe in superstition		
15	Do you consider it to be a factor/cause of accident		
16	Do you protect yourself spiritually		
17	Do you regularly maintain your bike		
18	Do you wear boots, glove, glasses, safety Jacket and Pads		

SECTION II: PRACTICES

	PRACTICES	YES	NO
19	Drunk riding is acceptable		
20	I engage in careless riding		
21	Over speeding is safe		
22	It's good to receive phone calls when riding		
23	Careless overtaking is necessary		
24	It's safe to disobey traffic regulations eg. Jump red light		
25	Wearing of helmet and other protective gears is needed		
26	It is needful to provide helmet and other protective gears for pillion riders		
27	The legislation mandating the use of helmets and other protective gears should be changed		
28	Okada operation is safe		
29	Okada is dangerous		
30	Okada is risky		

31. How would you assess the risk of getting an accident with a motorcycle?

a. High [ ] b. Moderate [ ] c. Low [ ]

SECTION III: Demographic Data

32. Sex: a) Male [ ] b) Female [ ]

33. Age: a) Below 20 [ ] b) 20-29 [ ] c) 30-39 [ ] d) 40-49 [ ] e) Above 50 [ ]

34. Level of education: a) Basic [ ] b) SHS [ ] c) Vocational/Technical [ ] d) Tertiary [ ]

35. Civil or Marital Status: a) Single [ ] b) Married [ ] c) Divorced [ ] d) Separated [ ]

36. Ethnic Extraction a) Akan [ ] b) Mole- Dagboni [ ] c) Ewe [ ] d) Ga-Adamgbe [ ]
e) Other…….

37. Ownership of bike a) Private Owned [ ] b) Relative [ ] c) Work and Pay [ ]
d) Other [ ]

38. How much do you earn monthly?

a) 200-400 [ ] b) 400-600 [ ] c) 600-800 [ ] d) 800-1000 [ ]

39. How many years have you been driving?

a) Less than a year [ ] b) Above a year [ ] c) More than two years [ ]

APPENDIX C: INTERVIEW FOR KEY INFORMANT

Interview Guide for Police

1. Can you please start by telling me a little about yourself and your position and your role(s) as an officer in the police service?
2. What are the policies governing/regulating regarding the use of Okada?
3. How does the Police as an institution ensure the effectiveness of the policy?
4. What are the operational challenges facing the enforcement of these road safety laws?
5. What is the root cause of the proliferation of Okada?
6. What is the agency doing to reverse the situation?
7. How do the police council the use of motor in the north and the south in terms of law enforcement?
8. Is the police in a better position to fight Okada since some police personals do patronise Okada?
9. Your advice to riders, pillion riders, and other road users?

APPENDIX D: INTERVIEW GUIDE FOR OKADA STATION MASTERS

1. Can you please start by telling me a little about yourself and your position and role(s) as Okada station master?
2. What are the dangers and challenges in Okada operation?
3. Despite the dangers involved what motivate riders?
4. What safety precautionary measures have been put in place for riders?
5. How do you ensure riders comply?
6. What is your expectation from the Government concerning Okada operation?
7. What do you have for the general public concerning Okada operation?

APPENDIX E: NATIONAL ROAD SAFETY COMMISSION

1. Can you please start by telling me a little about yourself and your position and your role(s) as an officer with NRSC?
2. What are the policies guiding road safety?
3. What are the roles/measures NRSC as an institution doing in ensuring safety on our road?
4. What are the operational challenges confronting your institution in ensuring road safety?
5. What is the conditional report and statistics on road accident in the Greater Accra region?
6. What is the greater risk to a motorcyclist on the road?
7. As a state institution, will your office fight for the legalisation of Okada operation?
8. Your advice to riders, pillion riders, and other road users?

APPENDIX F: INTERVIEW FOR COMMERCIAL DRIVER / PRIVATE DRIVER

APPENDIX G: INTERVIEW FOR HAWKERS/ PEDESTRIANS

1. What is your name, what do you sell and where do you sell?
2. Do you patronise Okada?
3. How do you perceive the activities of Okada operation?
4. How do the activities of Okada endanger your life when using/selling on the road?
5. Does Okada operation affect your business?
6. Should Okada be legalised?

APPENDIX H: INTERVIEW FOR DVLA

1. Can you please start by telling me a little about yourself and your position and your role(s) as an officer with the DVLA?
2. What are the policies governing motorbike registration?
3. What are the roles/measures DVLA as an institution doing in ensuring safety on our road?
4. What are the operational challenges confronting your institution in ensuring road safety?
5. What is the authority doing in preventing registration of motorcycle for commercial purpose?
6. Has the DVLA established riding training schools?
7. What is the conditional report on most accident?
8. What has been the differential in the statistics of road accidents over the year?
9. Your advice to riders, pillion riders, and other road users?