

Risk Exposures, Vulnerability and Mitigation Methods among Road Transport Workers in Nigeria

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Abstract

This study examines risk exposures among Road Transport Worker and their methods of mitigation. A simple random sampling technique was used to select respondents from Lagos State, Nigeria. In order to determine how different types of risk exposures contribute to number of accidents on the roads, Cramer's V was used to analyze and test the formulated hypotheses at 0.05 significant levels. The result of the findings revealed that age, driving experience, treatment seeking behavior and speed limit have significant relationship with drivers' risk exposures. The study also reveals that younger drivers are more exposed to accident than older drivers and the treatment seeking behavior used by the Road Transport workers exposed them as well as their families to financial danger. In line with these findings, it was recommended that Road Transport Workers, RTW should use a formalized means to mitigate their losses.

Keywords: Risk, Vulnerability, Mitigation, Risk exposure, Accident, Insurance

1.0 Introduction

Risk is an integral part of mankind. It is a permanent and important part of life. Everyone is exposed to various kind of risk including their properties. The willingness on the part of insurance industry to underwrite these kinds of risks the society is exposed to is crucial to achieving sustainable development. It is obvious that the higher the level of development and improvement in technologies, the more lives and properties are likely to be exposed to risks such as injuries, death and loss or destruction of properties. Thus, risk exposure is the quantified potential for loss that might occur as a result of some activities. This study deals with the risk exposures the road transport workers are exposed to.

They are faced with high risk of death, incapacitation, permanent disability, economic loss resulting from road accidents, physical violence, and injury to pedestrians, and damage to vehicles. In order to reduce the frequency and severity of these risks among the transport workers, the study examines risk behaviors associated with number of accidents in terms of fatalities, injuries and number of crashes. The dominant mode of transportation in Nigeria is the roadway and the analysis of the traffic crashes data recorded over a five year period of 2000-2006 shows that 98,494 cases of traffic crashes were recorded out of which 28,366 were fatal and resulted into 47,092 deaths (FRSC, 2009, cited in Aworemi et al, 2010). This revealing statistics shows that Nigeria is placed among the fore front countries (especially the developing countries) experiencing the highest rate of road tragedies in the world.

Nigeria is the most populous country in Africa and has road transportation as the major means of transportation thereby making her transport workers the most vulnerable to all form of risks and dangers. In fact, motor vehicle crashes continue to be the leading cause of untimely death in Nigeria...Previous studies on road accidents in Nigeria have focused on the causes and preventions (Aderamo, 2012). Fundamental among the risk exposure of transport workers is road traffic accident which is having a worsening effect on our society and economy. In spite of all this risk exposures and its attendant consequences, there seems to be a lackadaisical attitude on the part of road users to mitigate these risks. For instance, the low level of demand for comprehensive insurance policy and other insurance products attest to their attitude to precautions put in place. It has been observed that some of the precautions recommended in order to guarantee safety by relevant transport authorities are scarcely purchased or adhered to by most drivers. We are aware of the number of deaths on the highway being recorded these days. This places a question mark on the value we attach to human life and property

In light of the above, this study will examine the economic implications of losses experienced by the road transport workers and means to mitigate such losses. The type of risk treatment behavior employed by the National Union of Road Transport Workers in Lagos State

It will also examine the attitudes of road transport workers to insurance policies designed to reduce economic waste among them.

2.0 Literature Review

Road accident disasters that are claiming lives and property continue to attract the attention of various economies with sustainable growth and development in mind and the populace all over the world (Aderamo, 2012). The accidents on the road claiming the largest victims of human life and property tend to be the most serious problems world over (Kopits, et al 2005).

Worldwide, the number of people killed as a result of motor accidents each year is estimated at almost 1.2 million while the people injured could be as high as 50 millions (WHO, 2004). Currently, comparing the disaster occurrence all over the world, motor vehicle accidents rank 9th in order of disease burden and are projected to rank 3rd in the year 2020. While it was also observed by Odera, et al (1997) that nearly three quarters of deaths resulting from motor vehicle crashes occur in developing countries.

In Nigeria, Jacobs, et al (2000) supported this assertion that this problem appears to be more prominent and increasing also in developing nations. Apart from humanitarian aspect of the problem, traffic accidents and injuries in these countries incur an annual loss of \$65 billion to \$100 billion annually (Aderamo, 2012). These costs include both loss of income and the burden placed on families to care for their injured relatives

Several factors have been adduced for the increase in the morbidity and mortality burdens of accidents in the developing economies like Nigeria. Factors including rapid increase in the number of vehicles on the road and increase in road users, poor road infrastructures and the attitude or behavior of road users have been adduced. (Nantulya and Reich, 2003). In Africa, it has been estimated that 59000 people lost their lives in road crashes in 1990 and this figure will likely rise by 2020 by at least 144 per cent increase (Kopits, 2005) compared with technologically advanced countries where the indices are gradually reducing (Oskam, et al 1994 and O'Neil and Mohan, 2002)

It is of importance to note that increased motorization may be characterized as the automotive revolution, that is the motorizing of urban population especially in the developing countries where the major capital cities are heavily flooded with vehicles both private and commercial vehicles patronizing the same road network with bends, potholes and not adequately maintained highways. These have resulted no doubt in the increased rate of fatal road traffic accident, unexpected disasters of explosion destroying property worth millions of dollars.

The World Health Organization (WHO) estimated that 1.7 million deaths occur each year worldwide due to road traffic accidents. A breakdown of the figure estimated that 70 per cent of the deaths occur in developing countries.

The socio-economic costs of road traffic accidents and other risk exposures of transport workers in Nigeria are immense. The direct cost of traffic casualties on the economy is enormous and the only way to understand the effect is the amount of waste in terms of labour lost, the wastage of talents on the road as a result of accident. It can also be looked at from the economic point of view to the government and the loss of the social contribution of such lives to the economy or the nation through injury or death (Pratte, 1998). Road Traffic Accidents have significantly impacted on the Nigeria's socio-economic aspirations and development when we need to look at the rate qualified and potential professionals are dying on our road thereby indirectly reducing the labour force of both women and men which has been a trend since 1960s

In the light of all these events and records, it is therefore imperative to appraise the risk exposures of road transport workers, identify the risk exposure of our target, define driver's exposures, classify them accordingly, consider their vulnerability and highlight the various mitigating methods. To also look at the driving behaviors and the need for insurance protection among road transport workers.

2.1 Theoretical Framework

This section explores the theoretical possibilities of defining exposure and risk, in the context of health risk behaviour by transport workers. There are differences in the ways these terms are defined or explained. In this study we shall be looking at the various independent variables resulting into road accident injuries to body and property which is the dependent factor in this study. These independent variables are already highlighted as the risk on the roads, the accidents occurrence, the vulnerability of the drivers to some of the road hazards and the unconscious exposures to some of these risks on the road. An accident is generally defined, in this context, as an event in which at least one motor-vehicle was involved, that occurred on a public road and which resulted in injury. This is the only method of recording motor accidents by the police also the definition mostly used by police forces to record an accident. National differences exist in the definitions of accidents from country to country and the ways of recording the accident cases and injuries during the accidents and how they are usually recorded by police. They are sometimes registered according to the severity of the incidents or the injuries in the data base.

Hakkert (2002) presents a neat account of the etymology surrounding the term accident, and goes on to define an accident as follows: "a short, sudden, and unexpected event or occurrence that results in an unwanted and undesirable outcome". He further points out the event must be short rather than slowly developing and must be sudden in that it occurs without prior warning. Usefully, to minimize confusion further, Hakkert also goes on to distinguish between accidents, bad luck, misfortune, good luck, and achievement or goal fulfillment.

Various models of accident causation exist, each of which engender their own approach to accident analysis. Generally speaking, the view on accident causation has evolved somewhat over the past century, with an early focus on hardware or equipment failures being superseded by increased scrutiny on the unsafe acts or human errors made by operators, following which failures in the wider organizational system became the prominent focus during the late 1980s and early 1990s. It is now widely accepted that the accidents which occur in complex

sociotechnical systems are caused by a range of interacting human and systemic factors (Reason, 1990). Hakkert (2002) again distinguishes between three types of accident causation: sequential, epidemiological, and systemic accident models. Sequential models, characterized by Domino theory Accident causation model, view accidents simply as the result of a sequence of linear events, with the last event being the accident itself. Epidemiological models, characterized by Reason's model, view accidents much like the spreading of disease and describe the combination of latent conditions present in the system for some time and their role in unsafe acts made by operators at the so called 'sharp end. Finally, systemic models, as characterized by Leveson's systems Theoretic Accident Modeling and processes .focus on the connections between entities during scenarios of interest.'

2.2 The Nigerian Road Transport Workers

In 1978, a milestone occurred in the history of the road transporters in Nigeria with the formation of the National Union of Road Transport Workers popularly known as the (NURTW). Since this date, the activities of the road transporters have revolved around the NURTW. For a paper of this nature, it will be a big omission if we do not dwell a little bit on the structure and operations of the NURTW. The NURTW membership, broadly defined, include individuals (mainly male), who are involved in the use of different modes of transport such as motorbikes (motorcycles), buses, cabs, tankers and tricycles - for conveying passengers and goods from one destination within the country to another.

The need for orderliness prompted members of the sector to form two associations, namely the Road Transport Employers Association of Nigeria (RTEAN) and the National Union of Road Transport Workers (NURTW). Though the RTEAN predates NURTW, it is less active than the NURTW, which was registered as a trade union in 1978, and is an affiliate of the Central Labour Organization (CLO), now known as the Nigerian Labour Congress (NLC). While the RTEAN is less known, the NURTW has grown overtime, with its membership burgeoning on daily basis. Thus, it boasts of over "1.5 million membership throughout the federation" (The NURTW Diary, 2011: 6). With the exclusion of petroleum tanker drivers, all professional commercial drivers are automatic members of the Union. As such, the NURTW serves as an umbrella body for drivers operating motorbikes, taxi cabs, tricycles, buses (both intra and inter-state services), trailers andlorries that engage in the conveyance of passengers and goods.

The main objective of the Union is to promote the economic welfare of its members. This explains the reason for her engagement in series of programmes like Road Safety, Immunization, Family Economic Advancement Program (FEAP), Mass Transit Implementation, HIV/AIDS, and the Road Accident Medical Aid [RAMACHE] – a scheme that provides first aid for accident victims.

2.3 Road Safety Concept of Risk

According to the Oxford Dictionary, risk is a "hazard, chance of bad consequences, loss etc., exposure to mischance". Collins Dictionary describes risk as "a possibility that something unpleasant or undesirable might happen; something that you do which might have unpleasant or undesirable results.

In the field of road safety the concept of risk is perceived differently from the normal definition of insurance transfer mechanism that we are all used to. It is actually to describe the several ways of quantifying the level of risk available on a road. There are several kinds of risks such as personal, societal, individual and group risks. As a way of extension, we may need to add objective risk, subjective risks and compulsory risks that individual has to carry sometimes known as inherent risks. For our purposes, risk will be used to mean the probability of an accident occurring. Such a definition was proposed in Hauer (1982)

One element which might usefully be added to the definition of risk is taking risk as a probability of an event occurring or the deviation of the actual from the expected taking into consideration the severity of the outcome. Haight (1986). quotes a definition of risk that takes both aspects into account, i.e both the probabilistic nature of risk and the severity of the consequences: "A combination of the probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence."

In the field of road safety, the quantitative approach makes it possible to estimate the expected losses during a particular given period.(Van et al, 2001) This is usually expressed in terms of fatalities, casualties and/ or material damage. Therefore, it is often preferable to talk about accident rates (or casualty rates) rather than risk. When comparing accident rates, it is assumed we are talking about situations with outcomes of similar severity, otherwise the situations should not be compared.

2.4 Understanding Risky Driving Behavior

The driving behaviors of drivers especially the younger ones are naturally influenced by so many factors which include their knowledge of driving, perception of risk, the awareness of accidents, and the skills required to manoeuvre during an emergency. The conditions and the nature of the vehicle may also be an important factor, including the community to which they belong... Few of the characteristics that are found relating to motor vehicle morbidity and mortality among our drivers include race, age, gender, cognition, driving experience, and level of acculturation. Some of the other risk factors resulting into motor vehicle crashes among also include current bio physiological condition (for example, motor skills, sleep deprivation, and psychiatric/neurological

status), mental status (for example, mood, thoughts, feelings), and behavioural dispositions that the individual brings to the situation.

Inexperience and immaturity both contribute to high crash rates involving teen drivers...Carroll (1971) was of the opinion that most of the problem of the teen drivers that actually form the greater percentage of the private and commercial drivers could be adduced to the fact that peer expectations about driving, the euphoria of driving a car or vehicle, distractions by the use of alcohol, music and cell phones are associated with risky driving behaviors. Though,

Adolescent drivers because of their acclaimed experience tend to do so many things on the road that are likely to cause accidents, such as speeding, which has been found to significantly correlate with a greater risk for crashes. They also follow vehicles so closely forgetting the possibility of applying breaks suddenly and also change lanes regardless of other road users. In his own contributions, Hauer (1982) sees the physical environment outside the car as an issue to be taken into consideration especially the road condition, street lights, speed breakers and weather sometimes play a role in driving behavior and car crashes.. Differences in rural and urban settings have been observed to create different kinds of risks for drivers. The social, political, and economic environments also have been found to shape the driving behaviors of both young and mature drivers including knowledge, attitudes, awareness, and expectations, which in turn influence how they will respond when presented with the choice between risky and safe behaviors. The social environment has to do with exposure to communication tools, , urban crowding, , community norms about wearing seat belts, cultural standards regarding drinking while driving, and police ticketing practices. All of these societal conditions have been found to be associated with driving behavior.

2.5 Definition of Driving Exposures and Measurement

Exposure is generally expressed in a form relating to the number of times a particular driver is on the road. Sometimes the word volume is used to determine the exposures per driver. It is quite true that most countries do not have an established system of measuring this exposure of drivers while in some countries for engineering purposes data relating to volume are kept for the various parts of the road system are categorized by the different road users While some countries may decide to have it on motorways main rural roads and major intersections, still others conduct theirs on the amount of distance travelled and the amount of fuel consumption. In most cases the calculation of exposure by different groups of road users: car drivers, car passengers, public transport passengers, cyclists and pedestrians may be impossible because there is no enough information or data. Data from different sources are usually combined to calculate disaggregate exposure estimates for different population subgroups. At this point we may need to look at the suggestions of Salmon on factors analysis as to different ways of measuring exposures.

Although the basic definition is best adapted to a measure of the amount of driving, it can also deal with the nature of driving as it relates to DeSilva's "relative danger of external hazards".. However, problems of data collection have always been a problem making analysis of data increasingly difficult..The most commonly used measure of exposure normally adopted by various authorities has been the driving distance expressed in vehicle miles of travel. Sometimes measures including driving time, traffic volume, number of registered vehicles, number of licensed drivers, and gasoline consumption are part of those factors increasing the exposures to risk accident.

Road traffic experts look at risk from different perspective classifying it into four categories: the fist was identified as the exposure which explains the amount of movement from an end to another end or travelling within a particular system by various road users or a particular population group, risk is a function of four elements. The second is determining the probability on accident within a particular exposure. The probability and possibility of injury is recorded as the third phase by a crash. The fourth and the final phase is the outcome of injury.

According to Salmon (2009) risk may arise from so many factors which include the followings:

- human error within the traffic system;
- the size and nature of the kinetic energy of the impact to which people in the system are exposed as a result of errors;
- the tolerance of the individual to this impact;
- the quality and availability of emergency services and acute trauma care.

There are situations in which a single mistake from an operator of a motor vehicle could result in an error that may lead to death or a narrow escape from death. . There are also many things limiting the drivers from having or being vulnerable to accidents, it includes the vision at night, the possibility of determining the speed and distance, the mental processing of information and other factors that are physiological in nature associating with the age and the sex all having effect on crashes. Salmon, even went further to look at other things that are likely to result in human errors like the type of vehicle and road design, the traffic rules and regulations and the enforcement. .

The tolerance level of the human body during physical collision with motor vehicles is very low thereby

resulting into fatal injury or physical damage of the human body and the human frame. .. Bio-mechanical thresholds associated with age, sex and speed are reliable predictors of crash injury. While the problems are different both qualitatively and quantitatively, the main risk factors appear to be the same worldwide.

2.6 Vulnerability of the Drivers to Road Accidents

Another important theme to be discussed in this study is the vulnerability of the drivers to road accident disasters. O'Neil et al (2002) defined vulnerability as the extent to which a community, structure service and or geographic area is likely to be damaged or disrupted by the impact of particular hazard on account of that nature, construction and proximity to hazardous terrain or a disaster prone area. The road condition in Nigeria, the quality of pavements, the lack of or insufficient road traffic devices to give signs of impending intersection sometimes have been factors giving rise to crashes and making most of the drivers vulnerable to various road accidents. The vulnerability is increased majorly by the attitude of the driver in both single vehicle and multivehicle crashes through their behavior and attitude which include; inattention, cigarette, medical conditions, alcohol and drug abuse; inattention to the roadway and surrounding traffic, speeding and disregarding traffic law and/or traffic control devices, which could result from confusion or unfamiliarity with the roadway.

Aworemi, Abdul-Azeez and Olabode (2010) revealed in their study that most of the crashes are as a result of mechanical failure or bursting of tyre, brake failure or steering damage. The vehicle and roadway interaction like speed fine play a major role in stopping the vehicle from encroaching the off road features and other traffic signage.

Copper et al (1998) defined hazard as the possible, future occurrence of natural or human-induced physical events that may have adverse effects on vulnerable and exposed elements. Hazards are those events that will exacerbate the happenings of a particular risk. Hazard therefore is not the same thing as risk. Epetimehin, (2012) Road safety is a major burden on global well-being, with World Health Organisation data suggesting that approximately 1.2 million of the 5 million global injury deaths each year are road safety-related. As more and more evidence and statistics are collected to demonstrate that many of those deaths involve, or are caused by drivers at work it is becoming clear that fleet and road risk management needs to be at the heart of the process to develop a positive safety culture (Zegeer et al2004). Risk assessments are becoming a useful instrument of status review, as they provide a needs analysis and ideas on the understanding of vulnerable road users. The term Vulnerable Road Users (VRU's) may be generally defined as the road users who are most at risk for serious injury or death when they are involved in a motor-vehicle-related collision. These include pedestrians of all ages, types and abilities, particularly older pedestrians and people with disabilities. Site risk assessments and black-spot analysis are particularly useful for organisations that run regular trips on the same routes, or to the same specific locations. Start, stop and end-points are particularly important locations to risk assess. People make unintentional errors, and commit intentional violations.

In Quimby, et al (1999) after successfully defining disaster as a crisis situation that far exceeds our ability to recover. That is, it has to suffocate our ability to recover, he looked at vulnerability as the intrinsic characteristics of the elements at risk that determine how damaged they would be if they experienced a hazard event of same level. He, gave the different dimensions of vulnerability assessment

- Physical vulnerability which analyzes impacts of events on assets such as building, infrastructure, agriculture
- Social vulnerability estimates impacts of events on highly vulnerable groups such as the poor, coping capacity, status institutional structure designed to help coping awareness of risk
- Economic vulnerability estimates potential impacts of hazards on economic assets and processes (business interruption, and secondary effects.)
- Environmental vulnerability takes care of degraded environmental quality limits the natural resilience to hazard effects and reduces environmental buffering of effects.

According to Van(2001), drivers today are facedwith many problems when driving in congested andovercrowded cities, specifically by having the sensesoverloaded by the vast amount of information that needsto be continuously processed – a condition also knows asinformation overload.

There are also other important areas to be discussed in road safety and road safety measures. One of this is the influence of alcohol while driving. Researchers like Hakkert and Braimaister (2002) have done a lot of work on this, to the even show that the police and the policy makers are worried on how to reduce this bad behavior. This study was so popular to the extent of naming it Grand Rapids Study. Borkeinstein et al (1999) studied 5000 accident victims and a number of similar ones in a controlled environment. He came up with the report that the extent of alcohol can be detected in the blood-alcohol level of the drivers and those engaged in alcohol while driving involved more in accident. This has served as a major breakthrough of reducing accidents on the road..A subsequent study, conducted along similar lines in Germany (Kruger, Kazenwadel&Vollrath, 1995) produced similar results. The lessons learned from this study is that it is very necessary to keep records or have data bank. Without the exposure data it might be difficult to find solutions to most of the problems on the road.Through the use of this method the number of drivers involved in accidents greatly reduced in most countries. It is hopeful

that the same method would be adopted to reduce those drivers driving under the influence of drugs and medication.

The issue we need to discuss is that of speed. Speed generally is described as the major contributor to accidents. It is sometimes difficult for police to determine the actual speed before the accident, hence, police only rely on the information available before the occurrence of the accident, such as changing lanes, not stopping for a stop sign etc. Finch et al. (1994) carried out a research, by reviewing the data from variety of sources to look at the correlation between accident involvement rate and deviation from the mean traffic speed. He observed that it was U Shaped. This shows according to him that speed and speed distribution are significant factors in establishing the risk of an accident and in getting out the severity of such accident The implication of this for accident and risk studies is that speed information should be taken into consideration at all times.

3.0 Research Methodology

The population for this study was taken from Lagos State of Nigeria comprising Road Transport Workers. Random sampling technique was used to obtain information and the data required

This study made use of primary data extensively which included questionnaires distribution and secondary data from journals and relevant magazines.. Questionnaires were designed to source data from RTW about their exposures to risk. Section A providing socio-demographic data of the respondents, while section B revolves around attitude to risk.

Statistical Tools for the Analysis: Cramer's V technique will be used and where necessary the SPSS package will be used to look at some possible correlations and to analyze the formulated hypotheses.

. The parameters set to serve as guide to the use of Cramer's V are

0.01 – 0.10 = low relationship

0.11 – 0.30 = moderate relationship

0.31 – 0.99 = strong relationship

Decision Rule:

The following decision rules are adopted for this study:

- (i) Accept if significant is greater than P-value of 0.05
- (ii) Reject if significant is less than P-value of 0.05

Discussion of Research Findings

a One of the important factors used by the insurance underwriters in arriving at premium for motor insurance policy is driving experience. This means that highly experienced drivers pay fewer premiums than the amateur drivers. In other words, driving experience and number of accidents are significantly related (Table .1a-b) and the finding agrees with practice.

b Another risk factor for insurance pricing is age of the drivers. There is a general consensus among actuaries that the younger drivers are more susceptible to accidents than the old drivers as a result of youth exorbitant. Table2a confirms moderate and significant relationship between the age and number of accidents (Cramer's $V = 0.354$, $p < 0.05$).

The above results led to the rejection of H1 and H2. This suggests that age and driving experience have significant relationship with the drivers' risk exposures. For instance, Table 3a reveals that among the among three listed risk exposures to drivers, passengers carrying vehicles are more susceptible to theft, 86.7%; accident, 62.8% and death, 81.0% than other use into which vehicles are put. These three risk exposures can be mitigated upon by seeking for insurance cover. Table 6 reveals that 87.5% self insured, while the remaining 12.5% seek help from relations and association members. This type of attitude to risk seeking behaviour was compared with number of accidents and found that there is a strong and significant relationship (Cramer's $V = 0.577$, $p < 0.05$).

c Finally, Table.5a reveals that speed limit of vehicles relates to number of accidents. This table also shows that drivers that exceed the statutory limit are more likely to be involved in an accident (85.4%) than those who keep within the statutory speed limit (14.6%). This result is statistically significant (Table.5b)

4.0 Summary of the Findings

This study examined risk exposures and treatment seeking behaviours among Road Transport Workers in Lagos. In order to determine how different types of risk exposures contribute to number of accidents on the roads, the following specific objectives were considered:

- To examine whether driving experience relate to number of accidents.
- To examine whether the number of accidents reduce with age;
- To verify whether the use into which vehicles are put relate to treatment seeking behaviour
- To examine the relationship between treatment seeking behaviour and number of accidents and
- To examine whether speed limit relate to number of accidents.

The requirements for the above objectives were met by formulating and testing five hypotheses at 0.05 significant levels. The result of the findings revealed that:

- There is significant relationship between experience and number of accidents.
- Younger drivers are more exposed to accident than older drivers.
- The use into which the vehicles are put relates to drivers risk exposures.
- There is a strong and significant relationship between the number of accidents and treatment seeking behaviour.
- There is significant relationship between speed limit and number of accidents.

5.0 Conclusion

Based on the above findings, the following conclusions are reached:

- Drivers' driving experience, age, the use into which vehicles are put and speed limit have significant relationship with number of accidents on the highways.
- Treatment seeking behaviour strongly relate to number of accidents.
- Many RTW do not want to use insurance cover to mitigate against their risk exposures for different reasons such as trust, low income and complexity in claim processing.
- Transport workers have more to gain from insurance cover if used than self insurance and other means of mitigating risk.

6.0 Recommendation

Following the above conclusions, the recommendations below are made:

- Following the acceptance of insurance as a tool for mitigating risk by National union of road transport workers (NURTW), government should encourage them to take comprehensive cover by subsidizing the premium for them. This would no doubt lead to development of insurance industry as many transport road workers will be willing to purchase comprehensive cover. It would also reduce the level of risk exposed to as the terms and condition for insurability to be given by the insurance underwriters will reduce moral hazard among drivers.
- Insurance company should design policy that cover risk exposures of drivers and can be purchase at an affordable price.
- The government, National union of road transport workers (NURTW) and Insurance Company should look at ways of educating and encouraging the road transport workers towards patronizing insurance policies to cover their lives and vehicles in order to avoid risk.
- Also adequate training should be giving to the road transport workers on why the road signs should be observed, not changing lanes unnecessarily and obeying the road light where one is available. This will reduce their exposures to risk of accidents and give them protection while on the road. No doubt, with this, risk exposures will be considerably reduced among the road transport workers in the course of carrying out their professional duties.

Reference

1. Aderamo, J.A. (2012a). Spatial Pattern of Road Traffic Accident Casualties in Nigeria. *Mediterranean Journal of Social Sciences* 3(2):61-72
2. Aderamo, J.A. (2012b). Road Traffic Accident Deaths and Socio-Economic Development in Nigeria. *International Review of Business and Social Sciences* 1(5): 47-60.
3. Anstey K J, Wood J, Lord S. *et al* (2005) Cognitive, sensory and physical factors enabling driving safety in older adults. *ClinPsychol Rev*45
4. Aworemi, J.R, Abdul-Azeez, I.A, and Olabode, S.O (2010). Analytical study of the causal factors of road traffic crashes in southwestern Nigeria. *Educational Research*, Vol1(4):118 –
5. Borkenstein, R.F., Crowther, R.F., Shumate, R.P., Ziel, W.B. & Zylman, R. (1964). *The role of the drinking driver in traffic accidents*. Research Report. Department of Police Administration, Indiana University, Bloomington, Indiana, USA.
6. Carroll, P. S. (1971) The meaning of driving exposure. *HIT-Lab Rep.* (April). Highway Safety Research Institute, The University of Michigan, Ann Arbor.
7. Cooper C R, Denner J.(1998) Theories linking culture and psychology: universal and community - specific processes. *Annu Rev Psychol* 559–58.
8. Doherty S T, Andrey J C, MacGregor C. (1998) The situational risks of young drivers: the influence of passengers, time of day and day of week on accident rates. *Accid Anal Prev*45–52..
9. Desilva, H. R. (1942) *Why We Have Automobile Accidents*. Wiley,
10. Epetimehin, F M (2012) Introduction to Insurance Ibadan Crown Printer
11. Finch, D.J., Kompfner, P., Lockwood, C.R. & Maycock, G. (1994). *Speed, speed limits and accidents*. Project Report 58, S211G/RB, Transport Research Laboratory, Crowthorne,

12. Hakkert, A. S. and Braimaister, L. (2002). The uses of exposure and risk in road safety studies, SWOV Institute for Road Safety Research, The Netherlands.
13. Haight, F. A. (1971) Indirect methods for measuring exposure factors as related to the incidence of motor vehicle traffic accidents. Prepared for National Highway Traffic Safety Administration.
14. Hauer, E. (1982). *Traffic conflicts and exposure*. Accident Analysis and Prevention, 14, pp. 359-364.
15. Jacobs, G., Aeron-Thomas, A., Astrop, A. (2000). *Estimating global road fatalities*. London England: Transport Research Laboratory Report 445.
16. Kopits, E. Cropper, M. (2005). Traffic fatalities and economic growth. *Accid Anal Prev*, 37: 169-178
17. Kruger, H.P., Kazenwadel, J. & Vollrath, M. (1995). *Grand Rapids Effects revisited: Accidents, Alcohol and Risk*. In: Proceedings of the 13th International Conference on Alcohol, Drugs and Traffic Safety, ICADTS
18. Nantulya, V.M., Rerch, M.R. (2003). Equity dimensions of road traffic injuries in low-and middle-income countries. *International Journal of Injury Control Safety Promotion*, 10(1 – 2): 13-20.
19. O’Neill, B., Mohan, D. (2002). Reducing motor vehicle crash deaths and injuries in newly motorizing countries, *BMJ*, 324:1142-1145
20. Odero W, Garner P, Zwi A (1997). Road traffic injuries in developing countries: a comprehensive review of epidemiological studies. *Trop. Med. Int. Health*. 2:445–460
21. Oskam, J., Kingma, Klasen, H.J. (1994). The Groningen trauma study. Injury patterns in a Dutch trauma centre. *Eur. J. Emergency Med*. 1:167-172
22. Oxford Advanced Learners Dictionary, 6th Edition (2000).
23. Pratte, D. (1998). Road to Ruin: Road Traffic Accidents in the Developing World. *NEXUS*, 13:46-62
24. Quimby, A, G Maycock, C Palmer and S Buttress. (1999). *The factors that influence a driver’s choice of speed – a questionnaire study*
25. Salmon, P M (2009) *Human Factors Methods and Accident Analysis: Practical Guidance and Case Study Applications* London
26. Van K, Donald J (2001). *Vehicular Accident investigation and Reconstruction*. CRC Press LLC, Boca Roton, FL
27. World Health Organisation (2004). *World Report on road traffic injury prevention: Summary*, Genera.
28. Zegeer, C. and Hunter, W. (2012). *“Toward Zero Deaths: A National Strategy on Highway Safety”* – White Paper No. 5 – Safer Vulnerable Road Users: Pedestrians, Bicyclists, Motorcyclists, and Older Users

APPENDIX

Table .1a: Driving experience does not relate to number of accident

		Based on your experience, how many times have you had accidents?						Total
			1	2	3	6	Nil	
Driving experience	1-10	80.0%	51.7%	62.5%	20.0%		80.3%	66.9%
	11-20	20.0%	31.0%	31.2%	60.0%	25.0%	18.3%	24.6%
	21-30		10.3%	6.2%	20.0%	25.0%	1.4%	5.4%
	31 and above		6.9%			50.0%		3.1%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 1b Symmetric Measures

	Value	Approx. Sig.	Monte Carlo Sig.		
			Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Nominal by Nominal Phi	.641	.000	.000 ^a	.000	.023
Cramer's V	.370	.000	.000 ^a	.000	.023
N of Valid Cases	130				

Based on 130 samples

Table .2a: Number of accidents does not reduce with age

		Based on your driving experience, how many times have you had accidents					Total Total
		1	2	3	6	Nil	
Age 20-29	40.0%	51.7%	62.5%	20.0%		54.9%	51.5%
30-39	60.0%	17.2%	18.8%	40.0%		28.2%	25.4%
40-49		10.3%	12.5%	20.0%	50.0%	8.5%	10.8%
50-59		20.7%		20.0%		8.5%	10.0%
60 and above			6.2%		50.0%		2.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Field Survey, 2013

Table 2b: Test of Symmetric Measures

	Value	Approx. Sig.	Monte Carlo Sig.		
			Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Nominal by Nominal Phi	.709	.000	.000 ^a	.000	.023
Cramer's V	.354	.000	.000 ^a	.000	.023
N of Valid Cases	130				

Based on 130 samples

Table 3a: The use into which the vehicle is/are put does not relate to drivers risk exposure

		In the course of your duty, which of the following risk(s) are you exposed to			Total
		Theft	Accident	Death	
The use into which your passengers carrying vehicle is/are put	load carrying	86.7%	62.8%	81.0%	76.9%
	cargo carrying	8.9%	23.3%	14.3%	15.4%
	Others	4.4%	14.0%	4.8%	1.5%
	Total	100.0%	100.0%	100.0%	100.0%

Table 3b: Test of Symmetric Measures

	Value	Approx. Sig.	Monte Carlo Sig.		
			Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Nominal Phi	.351	.014	.008 ^a	.000	.023
by Cramer's V	.248	.014	.008 ^a	.000	.023
N of Valid Cases	130				

Based on 130 samples

Table.4a: There is no relationship between treatment seeking behavior and exposure to accident

	Who is responsible for the repair or replacement of damaged/write-off vehicle?				Total
	Self	Association members	Support from relations		
Based on your experience, how many times have you had accidents?	6.9%	1.6%			3.8%
1		36.5%		100.0%	22.3%
2		23.8%	33.3%		12.3%
3		7.9%			3.8%
6		3.2%	66.7%		3.1%
Nil	93.1%	27.0%			54.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4b: Test of Symmetric Measures

	Value	Approx. Sig.	Monte Carlo Sig.		
			Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Nominal Phi	1.000	.000	.000 ^a	.000	.023
by Cramer's V	.577	.000	.000 ^a	.000	.023
N of Valid Cases	130				

Based on 130 samples

Table5a: Number of accidents does not reduce with age

	Based on your driving experience, how many times have you had accidents						Total Total
	1	2	3	6	Nil		
Between 61km and 80km/h	13.8%	50.0%	20.0%		8.5%		14.6%
Above 80km/h	60.0%	58.6%	6.2%	20.0%	50.0%	57.7%	50.0%
	40.0%	27.6%	43.8%	60.0%	50.0%	33.8%	35.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Field Survey, 2013

Table 5b: Test of Symmetric Measures

	Value	Approx. Sig.	Monte Carlo Sig.		
			Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Nominal Phi	.459	.002	.008 ^a	.000	.023
by Nominal Cramer's V	.325	.002	.008 ^a	.000	.023
N of Valid Cases	130				

Based on 130 samples

Table 6: Risk exposures, severity of loss and Treatment seeking Behaviour

Source: field survey, 2013

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Risk expose to:				
Theft	45	34.6	34.6	34.6
Accident	43	33.1	33.1	67.7
Death	42	32.3	32.3	100
Total	130	100	100	
Always wear seat belt:				
Yes	114	87.7	87.7	87.7
No	16	12.3	12.3	100
Total	130	100	100	
Accident in last 5 years:				
Yes	72	55.4	55.4	55.4
No	58	44.6	44.6	100
Total	130	100	100	
Level of damage to vehicle:				
write off	3	4.2	4.2	4.2
seriously damaged	20	27.8	27.2	32
minor damage	49	68	68	100
Total	72	100	100	
Treatment seeking:				
self	63	87.5	87.5	87.5
Association member	3	4.2	4.2	91.7
support from relation	6	8.3	8.3	100
Total	72	100	100	

Table 6 shows that the respondents are exposed to the following risks: Theft 34.6%, Accident 33.1% and Death, 32.3%. Because, it has been observed among the transport workers that majority of them don't normally wear seat belt, an examination of such behaviour was carried out in this study, surprisingly more than 87.7% claimed they wear seat belt.