

Evaluation of Driver's Perception to Safety Belt Usage in Ilorin Metropolis, Kwara State, Nigeria

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Abstract: This study evaluated driver's perception of safety belt usage in Ilorin metropolis, Kwara State. The study incorporated drivers and officials of Federal Road Safety Commission (FRSC). The population of this study includes; sixty (60) drivers and (30) FRSC officials were selected randomly. Data were collected from primary sources of data through well-structured questionnaires that incorporated questions such as seat belt ability to save lives, driver's compliance with seat belt usage, effect of driving distance on driver's compliance with seat belt usage and frequency of penalty for safety belt violation were administered to respondents. Furthermore, personal interview was carried out on respondents. Data were subsequently analyzed using chi-square. The results revealed that driver's perception to safety belt usage, lifesaving capacity of safety belt, driver's compliance with safety belt usage, effect of driving distance on safety belt usage and frequency of penalty for safety belt violation. X^2 value of 51.378, 40.000, 10.000 and 4.444 respectively at (1) degree of freedom with p value of 0.000, 0.035, 0.000, 0.002 respectively < 0.05 level of significance, this showed statistical significance. In tandem with the objective of the study, the results revealed that drivers believed that usage of safety belt saves lives and reduces the probability of injuries and fatalities in the eventuality of road crashes. Therefore, the study recommended that programs and enforcement that spell out mandatory safety belt usage are important and more emphasis should be placed on them by the various stakeholders involved in road transport administration and management. This will in turn increase sensitization on safety belt wearing rate among drivers and other occupants in the vehicle. Thus, reducing injuries, economic loss, death and loss of valuable goods and services

Keywords: Drivers perception, Safety belt, driver's compliance, Traffic Offenders.

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I. INTRODUCTION

A. Background to the Study

In today's society, travelling by car is common and a necessary activity (Cunill et. al., 2004). The benefits of motor vehicles are well known and includes; rapid movement of people, merchandise, services and convenience at relatively low cost, among others. However, motor vehicle use also has a number of undesirable consequences, such as pollution, noise and traffic accident (Cunill et. al., 2004).

As defined by (Rodriguez et. al., 2006), cities are location with a high level of accumulation and concentration of economic activities, which form complex spatial structures that are supported by transport systems. Vanderbilt, (2009) expressed that "optimistic bias" or the "above – average effect" in drivers explains resistance to traffic safety measures like safety belts or cell phone restrictions. Seat belts are safety measures meant to reduce impact during crashes. Road traffic collision is a leading cause of death, killing yearly more than 1.2 million worldwide, half of them between the age of 15 and 44. They cause further disabilities for more than 50 million injured patients (World Health Organization, 2004). A reduction in the fatality rates can be achieved by improving vehicle crash safety and roadway design. The most important motor vehicle crash safety innovation which contributed to reduction in mortality has been the installation of speed limiter and proper use of safety belts (Bandstra et. al., 2009).

Other studies predict that road traffic accidents may be the fifth leading cause of death by year 2030 whereas it ranked the ninth leading cause of death (Nantulya and Reich, 2002). In spite of the fact that it is a social problem, road traffic fatality constitutes a significant challenge in developing countries particularly, Nigeria. Drivers and passenger's non-compliance with the use of safety belts may explain in part, the higher incidence of fatality from road traffic accidents in developing countries (Abati, 2003). In Nigeria, few studies have investigated drivers' compliance with use of seat belts for reasons associated with the fact that until

January 1st, 2003, the Federal Road Safety Commission (FRSC) did not enforce the use of safety belts thereby undermining the risks associated with non- use of seat belts (Omolase et. al., 2012; Sangowawa et. al., 2005). These studies agreed that drivers and passengers' non – compliance with the use of seat belts constitute a social problem. The cause of a significant number of these deaths and injuries is attributed to failure on the part of drivers and passengers to fasten their seat belts.

Seat belts are safety devices designed in vehicles to reduce the risk of drivers and passengers being flung out through the windshield or minimize bodily contact with the interior of the vehicle in the event of an accident (Olumide 2003). Drivers and passengers who do not use seat belts are likely to sustain severe injuries than those who use seat belts (Sule, et. al., 2003). Perhaps, this explains in part why drivers who do not fasten their seat belts often hit their chests against the steering wheel when accidents occur. Thus, resulting to internal hemorrhage on part of victims which usually leads to death long after the accident has occurred. Similarly, (Olukoga and Noah, 2005; Ojiabor, 2003) indicated that passengers have slammed their heads or parts of their bodies against dash boards of vehicles or thrown out of vehicles during accidents for reasons associated with the non - usage of safety belts. The foregoing suggests that the use of seat belts by passengers in the back seat is important as it is for passengers in the front seat. In an attempt to reduce the high rate of road fatalities due to non -usage of seat belts, FRSC began the enforcement of use of car seat belts in 2003 with emphasis on occupiers of the front seats FRSC, 2012.

B. Statement of the problem

Road traffic fatality constitutes a significant challenge in developing countries, particularly, Nigeria. Researcher such as (Murray and Lopez, 1996) indicated that the number of deaths recorded from road traffic injuries is higher in developing countries than developed countries. The cause of significant number of these deaths and injuries is attributed to the failure on the part of drivers and passengers to fasten their seat belts. For example, the FRSC report showed that between 1990 and 2008, 204,525 road traffic accidents occurred on Nigerian roads with almost 87,000 lives lost, (FRSC, 2012). Other issues relating to non-usage of safety belt include drivers' level of education, stigmatization with derogatory names, vandalisation of seat belts in vehicles, hike in price of seat belts and drivers' perception of when use of seat belts is proper, constitute barriers to compliance of seat belt usage.

C. Objectives of the Study

The main objective of this study is to explore driver's perception to safety belt usage in Ilorin metropolis. Other specific objectives are:

- i. To determine the perception of driver's to safety belt usage in Ilorin metropolis.
- ii. To examine the extent to which drivers comply with the use of safety belt.

D. Statement of Hypothesis

The hypothesis proposed for the study was stated in null form:

Ho: Drivers' perception to safety belt usage does not have effect on the level of compliance.

II. LITERATURE REVIEW AND CONCEPTUAL UNDERSTANDING

Research Report by National Highway Traffic and Safety Administration revealed that, seatbelts saves approximately 13,000 lives in the United States of America every year. NHTSA estimates that 7,000 U.S. car accident fatalities would have been avoided if the victims had been wearing belts. Road traffic death and injuries are a major public-health burden, especially in low and middle income countries. Without appropriate action, by 2020, road traffic injuries are predicted to be the third leading contributor to the global burden of disease and injury (Murray and Lopez, 1996). The use of seat-belts could prevent many of these deaths and serious injuries that occur among four-wheeled vehicle occupants.

There are three "collisions" that occur in every crash where occupants are unrestrained. The first collision involves the vehicle and another object, e.g. another vehicle(s), a stationary object (tree, signpost, ditch) or human or animal. The second collision occurs between the unbelted occupant and the vehicle interior, e.g. the driver hits his chest on the steering wheel or his head on the window. Finally, the third collision occurs when the internal organs of the body hit against the chest wall or the skeletal structure. Although of paramount concern, there is more than just the human suffering associated with non-use of seat-belts. The financial burden of increased death and injury severity can have a major impact on the finances of the government and local communities who are paying for the resources that are required to deal with road crash victims and their families in the aftermath of a crash. Everyone killed, injured or disabled by a road traffic crash has a network of others, including family and friends, who are deeply affected.

Globally, millions of people are coping with the death or disability of family members from road traffic injury. The economic cost of road crashes and injuries is estimated to be 1% of Gross National Product (GNP) in low-income countries, 1.5% in middle-income countries and 2% in high-income countries.

The global cost is estimated to be US\$ 518 billion per year. Low-income and middle-income countries account for US\$ 65 billion, more than they receive in development assistance (Jacobs et al, 2000). Thus road traffic deaths and injuries (RTIs) impose a huge economic burden on developing economies. These estimates take account only of the direct economic costs - mainly lost productivity - rather than the full social costs often recognized by industrialized countries. **Conceptual Framework**

1. System Theory

The systems perspective views human performance as a function of many interacting system - wide factors. In the context of human error and accident causation, for example, it is now accepted that errors are a consequence of 'systems' failure rather than merely aberrant psychological factors within individuals. Human error is thus no longer always seen as the primary cause of accidents, rather, it is treated as a consequence of latent failures residing within the wider system (Reason, 2000). In a road safety context, elements of the system beyond broad users, such as vehicle design and condition, road design and condition, road policies, and so on, all shape drivers behavior on the road.

Although there are other models of accident causation (e.g. Levenson, 2004; O'Hare, 2000), the systems based models is the most prominent and it is now widely accepted that the accidents which occur in complex socio - technical systems are caused by a range of interacting human and systemic failures (Salmon and Lenne, 2009). Systems - based accident analysis and investigation, described also in the 'Swiss model', (Reason, 2000) has been applied with significant success in a range of safety critical domains such as in road transport, aviation, process control, rail transport and in a range of other domains which they have been applied successfully (Salmon et al., 2009).

2. Risk Theory

Risk theory has also been used in the description of accident causation. Risk can be defined as the effect of uncertainty on objectives whether positive or negative. Its management is followed by coordinated economical application of resources to minimize, monitor, and control the probability and impact of unfortunate events (Hubbard, 2009; Rundamo, 2004; Moen, 2005) or to maximize the realization of opportunities.

Risks can come from uncertainty in financial markets, project failure, legal liabilities, credit risks, accidents risk, according to DeJoy (1989) is a function of four elements. The first is the exposure or amount of movement or travel within the system by different users or a given particular exposure. The third is the probability of injury given a crash. The fourth element is the outcome of injury.

Risk can also be explained by human error (Reason, 2000) Kinetic energy, tolerance of human body and post - crash care (Bustide et al. 1989).

The realist sees risks as objective hazards or threats that exist and can be estimated independently of social and cultural processes but that may be distorted or biased through social and cultural frameworks of interpretation. The constructionist sees nothing as a risk in itself. Rather, what we understand to be a risk, the constructionist sees as the product of historically, socially and politically contingent ways of seeing. Proponents of the middle positions between realist and constructionist theory see risk as an objective hazard or threats that are inevitably mediated through social and cultural processes and can never be known in isolating from these processes (Horden, 2004).

3. Attitude Theory

Attitude is germane to this study because it indicates that an individuals' disposition towards the use of seat belt may determine whether he/she complies with the use of seat belts. Attitude is an enduring system of positive or negative evaluations, emotional feelings, and pro -or -con - action tendencies, with respect to a social issue. In addition (Stuart, 1997) identified three components of attitude, namely cognitive, feeling or emotional, and action components.

The cognitive components of attitude constitute beliefs, opinions, ideas, stereotypes, and thoughts that an individual conceives about particular issues, either negative or positive. Thus, when drivers' cognition or perception about use of seat belt is either negative or positive, it predisposes them to develop emotions or feelings that determine whether they conform or not.

Thus, the feeling component is the emotion attached to the use of seat belt given that it motivates drivers' attitude to comply with the use of seat belt. The action component is the outcome of decision from both the cognitive and feeling components reached by drivers. For example, drivers' compliance with the use of seat belts is reflective of their cognition and emotion or feelings towards use of seat belts, and vice versa. Thus, drivers perception to safety belt usage is therefore, related to their attitudes and level of compliance.

III. METHODOLOGY

A. Population of the Study

The population of the study was drivers and officials of Federal Road Safety Commission in the study area, the sample size was taken from the total population by randomly selecting 60 drivers and 30 road safety officers in the study area. Furthermore, a personal interview was conducted for 20 drivers and 20 Federal Road Safety officers in the study area. Data were collected through primary sources which were through questionnaire administration. The study hypothesis was later analyzed through inferential statistics i.e. chi – square statistical tool.

Chi – square Model Specification

B. Model specification

The chi – square (χ^2) test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories. Chi square is given by the formula

$$\chi^2 = \sum \frac{(Of - Ef)^2}{Ef}$$

Where Of = Observed frequency

Ef = Expected frequency

Expected frequency = $\frac{(\text{Row total})(\text{Column total})}{\text{Grand Total}}$

Degree of freedom = $(r - 1)(c - 1)$

Where r = row total

c = column total

C. Measurement of Variables

Driver's perception on seat belt usage, is the measure of how drivers perceive the use of safety belt installed in their various vehicle, is been affected by some predetermined variables such as drivers compliance to wearing of seat belts as life saving device, frequency of drivers been punished for non – compliance of seat belt usage, drivers acceptance of the fact that seat belt can save life and effects of travelling distance on seat belt usage by drivers in the study area. Structured questionnaires were used to elicit information from respondents. Response was obtained mostly in nominal data. These data were there after computed as interval or ratio scale to make them amenable to parametric tests. Likert grading scale of strongly agree -5, Agree – 4, Undecided – 3, Disagree – 2, Strongly Disagree - 1 was attached to each of the variables to be responded by respondents. The outcome was later used as surrogate and entered for the statistical analysis.

IV. RESULT AND DISCUSSIONS

Table 1: below present Chi – square analysis of driver perception of seat belt usage. According to the table, it is observed that drivers perception of seat belt usage as lifesaving device is rated highest with χ^2 of 51.378 which is significant at $P < 0.05$ level of significance. Therefore, it is observed that there is significance relationship between driver's perceptions of seat belt usage as life saving device. Seat belt usage is very important in preventing death as a result of road traffic crashes. The use of seat belts had reduced the probability of being killed for drivers and front seat passengers and for passengers in rear seats of vehicles Evans, (2008).

Thus, confirming the fact that drivers believe in the usage and importance of seat belts because it saves lives of its users Ogundele et al., (2013). This situation is ranked in descending order with perception of driver compliance with seat belt usage as a driver, effect of distance of driving on seat belt usage and being penalized for non-compliance with seat belt usage, with χ^2 values of 40.000, 10.000 significant at $P < 0.05$ level of significance. Hence, the hypothesis which states that drivers' perception to safety belt usage does not have effect on the level of compliance of drivers with safety belt usage is rejected. Furthermore, it has been established that drivers in the study area are aware of the importance of safety belt as a life saving device in a vehicle.

In the light of the above, result from personal interview shows that private car drivers and owners complied more with seat belt usage than commercial vehicle operators in the study area, commercial drivers at times intend to sling the belt over their body when they sight men of Federal Road Safety Commission. This is to prevent them from being arrested and their vehicles impounded Knoblauch, (2003). Very few commercial vehicle drivers in the study area had lost their safety belts in the course of assisting in the towing of other colleagues broken down vehicles and as a result of nonchalant attitude. Commercial drivers do not comply with safety belt usage once men of FRSC have left their various patrol spots and after close of work for the day, this act have accounted for fatal injuries and death of drivers and passengers in the study area.

Table 1: Chi – square analysis of driver's perception of seat belt usage

Variable	X ²	Df	P – value	Remark
Frequency of seat belt usage as a driver	40.000	1	0.000	Significant
Frequency of penalty for non-compliance with seat belt usage	4.444	1	0.035	Significant
Ability of seat belt in life saving process	51.378	1	0.000	Significant
Effect of distance on seat belt wearing	10.000	1	0.002	Significant

Significant at 0.05 level of significance

Source: Authors computation, 2019.

V. CONCLUSION AND RECOMMENDATION

Based on the of findings, it was revealed that there exists relationship between driver's perception of seat belts usage and seat belt importance in saving lives, driver's compliance to seat belt usage, effect of distance of driving on seat belt usage and receiving tickets for seat belt usage violation. The study also found out that drivers are aware of the fact that seat belt usage saves lives of users. Furthermore, seat belt is an effective lifesaving tool that not only saves lives, but significantly reduces the severity of injuries that a vehicle occupant may sustain if not wearing the device. In conclusion, the study recommended that programs and enforcement activities that spell out mandatory seat belt usage should be increased among commercial drivers to reduce injuries and deaths. There should be combined efforts to ensure regular and mandatory motor vehicle inspection and maintenance by Vehicle Inspection Officers (VIO) and Federal Road Safety Commission (FRSC).

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