

## Review On Factors Causes Road Traffic Accident In Africa

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### Abstract

Road accident is a global tragedy with ever rising trend and endless. Road traffic injuries were among the leading causes of death, life-long disability and property damage in this world. According to World Health Organization, 2018 report; road traffic deaths were the eighth leading cause of death more than tuberculosis and HIV/AIDS. Africa's roads were the world's deadliest for a multitude of reasons. Categorically; human, mechanical and environmental factors were basic causes for road traffic accident in Africa. The main purpose of this paper was review and investigating factors causes road traffic accident in Africa. This review consider all African countries and probable factors causes road traffic accident in Africa. Even though; due to constraint of data this review constitute twenty-four African country those constitute more than eighty percent of population size in Africa with sixty-three research articles to define the factors causes road traffic accident in Africa. As per the investigation on road traffic accident in African countries the majority of researchers and research articles revealed that human related factors (like speed driving, over taking, reckless driving, fatigue, drunk driving, drug, seat belt, sleeping, cell phone usage and etc.) accounted a causes for more than three fourth of road traffic accident Africa. In most populated Africa country like Nigeria, Ethiopia and Egypt more than eighty percent of road traffic accident happen due to human related factors. Particularly; drivers play a significant role for the occurrences of road traffic accident in Africa. While the remaining less than one fourth of road traffic accident causes related to environmental and mechanical related factors in Africa. As per the finding; pedestrians and passengers were the major risk taker in road traffic accident in Africa. Even if; the effect of environment and mechanical related factors were minor, it was not as such negligible causes for the occurrences of road traffic accident in Africa. So, to curb road traffic accident in Africa; concerning body, government and stake holder must undertake probable solution to fix a problem that caused by human related factor on road transport system.

### Introduction

Road accident is a global tragedy with ever rising trend. Road traffic accidents can seem endless. World Health Organization 2015 reports; from road traffic injuries were among the leading causes of death and lifelong disability among young people aged 15-29 years and top three causes of mortality among people aged 15-44 years [1]. The reports also depicts that about 1.24 million people die annually on the world's roads, with 20-50 million sustaining non-fatal injuries [1, 2]. The Institute for Health Metrics and Evaluation in 2015; estimated about 0.9 million, 1.3 million and 1.4 million deaths from road traffic accident in 1990, 2010 and 2013 respectively [3]. According to World Health Organization 2018 report; road traffic deaths were the eighth leading cause of death for all age groups killing more people than tuberculosis and HIV/AIDS [4]. Africa's roads are the world's deadliest for a multi-

tude of reasons. All African countries except South Africa meet either none or just one of the United Nation's seven main vehicle safety standards [5]. According to 2013, world health organization report; over 85% of all deaths and 90% of disability adjusted life years lost from road traffic injuries occurred in low and middle-income countries, which have only 47% of the world's registered vehicles [2, 3]. According to the 2015 Global status report on road safety, the WHO African Region had the highest rate of fatalities from road traffic injuries worldwide at 26.6 per 100 000 population for the year 2013 [2, 3]. Sub-Saharan Africa was the global capital for road traffic deaths [4].

Getting into a car accident causes several unwanted consequences, including slight injuries, serious injuries, and loss of life and property damage. Categorically; human, mechanical and environmental factors are basic causes for road traffic accident in Africa.

According to Pines; Distracted Driving, Speeding, Drunk Driving, Reckless Driving, Rain, Running Red Lights, Running Stop Signs, Teenage Drivers, Night Driving, Design Defects, Unsafe Lane Changes, Wrong-Way Driving, Improper Turns, Tailgating, Driving Under the Influence of Drugs, Ice, Snow, Road Rage, Potholes, Drowsy Driving, Tire Blowouts, Fog, Deadly Curves, Animal Crossings, Street Racing were causes of road traffic accidents [6]. Causes of car accidents can seem endless. Every day, people die in road collisions. So many variable factors are linked to accidents on the road. This paper tries to review the accident information by looking at three general contributing factors: human factors, road and environmental factors involved in Africa road traffic accident.

## Review On Factors Causes Road Traffic Accident In Africa

Identifying factor those causes road traffic accident was one of fundamental step used to curb the problem that cost huge loses of life, physical injuries and property damage at all. In case; this paper basically emphasis on review factors contribute road traffic accident in Africa. To make this paper significant the reviewed paper uses all African countries data on factors related to road traffic accident found in Africa for analysis purpose. Even though; due to data constraint and other related factors the review process considers twenty four African countries those constitute more than eighty percent of population size in Africa with sixty three research article that deals on factors those causes road traffic accident in Africa countries. Based on the review paper and illustrated ideas the study define the probable factors those causes road traffic accident in Africa at large. In order to be significant the paper was depicted accordingly.

Conferring to D.Ennajih and et al., 2015; human factor was one of the causes for road traffic accidents in Morocco; that make our roads remain among the most deadly [7]. Similarly; Tarek and Achour, 2015; reals that the human factor was the main cause of road accidents in Algeria [8]. Concomitantly, Dr. Derdiches Ahmed and et al., 2017; number of traffic accidents in Algeria continues to increase, and human factor was the main culprit in the occurrence road traffic accident [9]. In 2018; according to the annual report of Algeria; human factor would be the main cause of road accidents with a 96.02% rate. Speeding was the lead accounting alone for 19.64% [10]. According to Elamin; in Algeria the causes of traffic accidents were related to humans, transport and the environment. Generally, the human being was often blamed for being the main cause of accidents with speeding, dangerous driving and failure to respect the safety distance [11]. Ibrahim and et al., 2008; stated that major road traffic accidents occur because of environmental stress factors in Libya [12]. The traffic department records in Tripoli many different causes for traffic accidents inside the city was high speed (speeding), lack of attention, improper stopping, driving under the influence of drugs, improper turning, violation of traffic laws, ignoring priority of way, using mobile phones during driving and other reasons especially the city of Tripoli [13]. Tayfour and et al., 2012, the major causes of traffic accidents in Sudan were attributed to driver behaviour, vehicle fleet and conditions, road network defects, speed-limit violation, negligence of seat-belt usage and lack of traffic-law enforcement [14]. According to Elawad, 2014; in Khartoum to Medani highway of Sudan the main causes behind road traffic accidents were incorrect passing of vehicle (32.3%), incorrect crossing of pedestrian (30.8%), high speed (22.6%) and driving under influence of alcohol (7.5%) [15]. Similarly; Ahmed Elsiddig and et al., 2016; factors for road traffic accident in Sudan depict that 60.6% were due to human; 45.5% due to road condi-

tions; 5.6% caused by animals and 1.4% due to inadequate vehicles [16]. The issues Sudan sees today can be attributed to many factors related to road traffic accident including; the lack of surveillance, driver recklessness, and vulnerable roads [17].

Cheteni, 2016; suggest that drunken driving, paved roads and use of seatbelts were some of the determinants in the number of road related fatalities in South Africa [18]. According to South Africa Road Traffic Management Corporation 2016-2017 report describe that human factor as the primary reason for 77% of all fatal road accidents. This was followed by road conditions at 16%, and the condition of a vehicle at 6% [19]. Fourie and Verste, 2018; in South Africa road traffic accident human factors contributed to almost 80% of the fatal accidents of which 52.5% of these incidents related to jay walking and 11.6% to speeding. Road and environmental conditions contributed to 12.7% of the accidents, with sharp bends (22.0%) and poor visibility (16.5%) the main causes. The remaining 7.8% of the fatal accidents were caused by vehicle factors, with tires bursting prior to the accident in 71.7% [20]. According to Ludovic and et al., 2018; in South Africa Road traffic accident seems associated with environment and "human" factors, which seem to be the most influential. Moreover, the establishment of a stronger relation to high speed driving increases traffic accident risks and can also be intensified by sensation seeking. Other factors such as substance use (alcohol, drugs, and "binge drinking") were also identified as risk factors. Furthermore, cell phone use while driving and attention deficit disorder with or without hyperactivity also seem to be important risk factors for car accidents [21]. In Botswana, the number of deaths from road accidents was relatively high compared with other African countries. The main causes of accidents were speeding and drunken driving, and the increasing traffic congestion during rush hours in the urban areas [22]. In Eswatini, Masuku state that travelling at high speed in bad weather conditions or at night when visibility was limited as some of the causes in road traffic accident. Other factors include dangerous, reckless and inconsiderate driving, particularly barrier-line infringements. Some people were involved in accidents as a result of the abuse of alcohol by both drivers and pedestrians. Fatigue was the main cause of accidents among public transport drivers. Tire failure and defective brakes were also listed among the causes. Pedestrian negligence (walking on the freeway) was also listed [23].

In Nigeria:- from the three causes of road traffic accidents (Human factors, Mechanical factors and the Environmental factors); human factors was responsible for over 80 percent of all traffic crashes [24]. According Bun, 2012; driver factors solely contribute to about 57 percent of road traffic accidents. While; 93 percent either alone or in combination with other factors. Driver factors in road traffic accidents were all factors related to drivers and other road users. This may include driver behaviour, visual and auditory acuity; decision making ability and reaction speed [25]. It was clear that human factor; the most potent contributor to motor vehicle accidents in Nigeria. This was not surprising because people pervade all aspects of traffic accident causation: from poor road construction, corrupt traffic law enforcement, to poor road user. The driver who disobeys road traffic regulations may be the doctor or nurse in the hospital where accident victims are treated [26]. The results obtained from the statistical analysis of the research question indicated that human characteristics, vehicle characteristics, roadway characteristics, and environmental characteristics made a joint significant contribution of about 79.4% to the road traffic crashes in south western part of Nigeria [27]. Benie and et al., 2016; in Cote D'ivoire depict that the majority; 93.5% of road traffic injuries occurred in urban areas. Pedestrian victims were identified in more than one half (59.3%) of

cases. Excessive speed and dangerous overtaking were the leading causes of fatal accidents. The risk of a fatal accident was 6.8 fold higher in rural areas than in urban areas [28]. According to Chador and et al., 2017; in Burkina Faso the main causes of road traffic accident were careless driving and drunk-driving. Drivers and passengers constituted 86% of the deaths with few pedestrian deaths [29]. Sherry and Stanislaus, in 2014; revealed that in Ghana most of the road traffic accidents were caused by the carelessness of drivers, poor vehicle maintenance, inadequate road traffic signs and markings, and unfavorable climatic conditions. It also indicated that the influence of alcohol and use of phones while driving constituted the minor causes of road traffic accidents [30]. According to Harman and et al., 2016; Road traffic accidents was one of the leading causes of morbidity and mortality in the world. In Ghana, the etiological factors may be classified into human and environmental; out of which human factor account for 90% of the accidents. Human error was responsible for accidents in 77% of cases in which drivers were at fault in 56.2% of cases followed by pedestrians and passengers of vehicles responsible for 17.8 and 3.0% cases respectively. Defects in vehicles, poor weather accounted for accidents in 8.4% cases respectively and bad roads were responsible for accidents in 4% cases only. The important thing was human factors responsible for accidents in Ghana were over speeding, rash driving, not following traffic rules, carelessness while crossing roads, playing on road, alcohol intake, fatigue and sleepiness [31]. Similarly; Godwin and et al., 2015; over speeding, over loading and disregard to road signs or regulations were the first-three main road traffic accident causing factors in Ghana [32]. Also; Sam, 2012; driver speed choice and driver risk taking behaviour were a function of many factors including gender, age, driving experience, the particular car model one drives and the safety devices. Sam concluded that drivers show behavioral adaptation to safety devices in their vehicles and the highway condition and males were more likely than females to take risk [33]. According to Sesay, 2017; drunk driving, bad roads and weather conditions were some of the factors causes road traffic accident in Sierra Leone. In addition to that; Speeding was another major factor as road speed exerts a significant influence on the risk of an accident and its severity [34]. Similarly; failure to observe traffic rules and regulations, drunk driving and over loading, driving on the wrong way on a one-way street, and drowsy driving as some of the causes of road accidents in Sierra Leone [35]. In Gambia, mostly crashes involving pedestrians compared to all other road users were more likely to involve speeding by motor vehicles [36].

According to Persson, 2008; in Ethiopia road traffic accidents was related to poor road network, absence of knowledge on road traffic safety, mixed traffic flow system, poor legislation and failure of enforcement, poor conditions of vehicle, poor emergency medical services and absence of traffic accident compulsory insurance law have been identified as key determinants of the problem [37]. Kussia, 2017; revealed that alike any developing countries, pedestrians and passengers were found to be the most vulnerable and hardest hit segment of road users in Ethiopia. Human errors (mainly drivers' behavior and actions) was found as the major cause of road traffic accident in Ethiopia [38]. Fesseha, 2014; also states that errors committed by drivers were the chief causes of the accidents in Ethiopia; such as failure to give priority to pedestrians, speeding, failure to stay on the right side of the road, failure to maintain distance between vehicles and failure to yield the right of way for other vehicles. Overall, these factors accounted for 83.8% of all traffic accidents [39]. Similarly, Mengistu and et al., 2018; revealed that the influence of over speed and over takings were more leading in occurrence of accidents followed by failing to give priority and pedestrian factors in Ethiopia [40]. According to A.A. Osor and et al., 2015; in Kenya most contribu-

tory factors of road traffic accident were human errors, bad road and defective vehicle accounts 59.6%, 19.5%, 29.9% respectively. Antecedent factors associated with RTAs included over-speeding, overloading and laxed policing [41]. Daniel, 2016; also concluded that the causes of road traffic accidents in Nairobi County were multi-factorial and can be categorized into driver factors, vehicle factors and roadway factors. Driver factors relates to all proximate factors affiliated to the driver that may result to an accident occurring. Speeding was a leading cause of accidents and policy should be geared towards addressing driver behavior as it predisposes the driver and other road users to injury [42]. Similarly; Muchene, 2019; depict that drivers and motorcyclists, pedestrians, and vehicle defects were identified as the major causes of accidents, while passengers and road defects did not significantly cause accidents [43]. According to Theuri, 2008; in Kenya the main causes of road traffic accidents were human error factors. The top five causes of driver-related accidents were speeding, overtaking carelessly, cutting in, misjudging clearance, and pulling from near side. The uri also stated that Pearson Product Moment Correlation Coefficient and Spearman Correlation Coefficient illustrated there was a strong positive correlation between driver behaviour and road traffic accidents [44]. Mutune and et al., 2017; also revealed that; primarily driving behaviour such as speeding were the major reasons associated with incidence of road traffic accident. Secondly, the study established that drivers' personal characteristics influence incidence of road accidents. Thirdly, the study determined that road surface conditions influence incidence of road traffic accidents in Kenya [45]. In Tanzania, the three leading causes of road traffic accident were speeding, careless driving and mechanical defect of the vehicle that accounts 25.1%, 20.1% 14.0% respectively [46]. According to Walter and et al., 2018; factor with the largest magnitude index on road traffic accident was reckless driving; other related factors significant for occurrences of road traffic accident were external factors, vehicle defects and driving speed. Alcohol intoxication contributes the least to accidents in the index in Tanzania [47]. F.P.Pebalo and et al., 2012; depict that causes of road traffic accident were identified in Uganda; reckless driving and riding (49%), poor road design (24%), drug abuse (15%) and over loading (12%) [48]. Similarly, alcohol was an important factor in road traffic injury in Uganda [49]. In Mozambique the main causes of crashes include reckless driving, drunken driving, roads with potholes, inadequate signs, lack of protection for pedestrians, and inadequate traffic law enforcement [50]. Ronald and et al., 2019; revealed that in Zambia pedestrians crossing the road and drivers with excessive speed were causes of road traffic accident that accounts 30% and 29% respectively. Ronald and et al., also depict that driving in the early hours of the day (1AM-6AM) as compared to driving in the night (7PM-12AM) had a significant increase in the incidence rate of death from road traffic accident [51]. In Zimbabwe, key risk factors that contribute to road traffic injuries include reckless driving, violation of traffic laws, damaged vehicles, and bad roads [52]. According to Njodzi and et al., 2016; environmental factors as the major driving factor of road traffic accident with scores 72.5% followed by human factors with score of 39.7% and lastly the mechanical factors with total score of 38.3% [53]. Musingaf and et al., also revealed that in Zimbabwe accidents were mainly a result of human error [54]. According to Aden, 2019; in Djibouti the first factor contributing the traffic violation and imply more and severe injuries were happen due to human related factor. If this factor effectively managed the mortality rate can be mitigated to a substantial level. The second risk factor related to complying with government traffic rules, laws and regulations targeting various kinds of vehicles, driver groups in terms of reducing human, vehicle and environmental risk factors [55]. In Egypt road traffic accident human error accounted for 72 % of accidents. While;

the remaining technical problems in vehicles caused 18.2% of accidents and road problems accounted for 3.1% [56]. Mena, also depict that driver error was the main cause of road accidents in Egypt that accounts 75.7%, followed by technical malfunctions with 17.1%, and poor road maintenance with 2.9 percent [57].

In DR Congo; the majority of road traffic accident caused by drivers that accounted 53.4 %, over speeding accounted 32 %, distracted driving (22%); overtaking (16%) and careless driving/risky maneuver (15%) and driving under the influence of alcohol (9%) were the main causes of road traffic accident occurrence [58]. According to Milagres, 2014; excess of speeding, bad technical condition of the vehicles and drunk driving were the main causes of road traffic accident in Angola [59]. Joelle and et al., 2010; in Cameroon the main causes of fatal crashes were mechanical failures (28%), two-thirds being tire problems, hazardous overtaking (23%), and excessive speed (20%) [60]. According to Nchewang and Brenda, 2013; driver errors account for over 80% of all fatal and injury crashes on Cameroon roads. Many die as a consequence of inexperience, speeding intoxication through drink or drugs or just plain recklessness. The worst part was that a driver can only control his own actions and not those of the drivers next to him [61]. Similarly, APA stated that most accidents in Cameroon were caused by speeding, hazardous overtaking, vehicle condition and other factors related to fatigue and distractions while driving [62]. Also, Bibehe stated that accidents in interurban Cameroon areas over the 2008-2014 periods were caused by three major issues: drivers' inattention and distraction (30.67%), speeding (19.97%) and drivers' lack of control (18.53%) [63].

## Conclusion

Road traffic accident was factoring that cost huge loss of life, physical injuries and property damage in most Africa countries. Review of factors causes' road traffic accident by itself a fundamental step used to identify the problem and means to curb the situation in African. In order to undertake this review all African countries were under consideration. In spite of data constraint this paper try to review twenty four African countries those constitute more than eighty percent of population size in Africa with sixty three research article. Different researcher and research articles depict that factors related to road traffic accident in Africa basically categorized as human, environmental and mechanical related factors. Though; the significant impact of those factors varies in different African countries. For the occurrences of road traffic accident in Africa those factors play interrelated impact. As per the review, the weight of human factor for the occurrences of road traffic accident play significant role that count more than three fourth of road traffic accident in the continent. Generally; different researchers and stake holder concerned in this research depict that; the majority of road traffic accident happen in Africa was related to human factor. This implies that; human related factors (like speed driving, over taking, reckless driving, fatigue, drunk driving, drug, seat belt, sleeping, cell phone usage and etc.), were playing significant and accredited role other than environmental and mechanical factors for the occurrences of road traffic accident in Africa. In most populated Africa country like Nigeria, Ethiopia and Egypt more than eighty percent of road traffic accident happen due to human related factors. Under this circumstance, driver was a fundamental cause for the occurrences of road traffic accident in Africa. Meanwhile; pedestrians and passengers were main risk takers in road traffic accident. As a result; concerning body, government and stake holders in most African country road transport concerning sector must give priority for human related factor mainly on driver to curb problem that faces road transport system at large. Even though; the impact

of those environment and mechanical factor poor in road transport system, it was not as such negligible for the occurrences of road traffic accident. Therefore; most African country road transport concerning sectors must give emphasis on environment and mechanical related factors those causes road traffic accident to minimize the rated problem in Africa.

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