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Increasing rate of road traffic accidents in Sub Saharan Africa, an issue of negligence or carelessness? Case study, Cameroon

Adanze Nge Cynthia *, Bülent Kılıç and Fenangi Chiara Nainkwi

Department of Public Health, School of Medicine, Faculty of Health Sciences, Dokuz Eylül University, Turkey (Türkiye),

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Abstract

Objective: Road traffic injuries (RTIs) have over the years been on the rise with most casualties coming from the African region, even though they possess and utilize less cars than the developed countries. The purpose of this paper was to highlight the government's and civilians' negligence and carelessness in reducing the incidence of RTIs in Africa, using Cameroon as a case study.

Methods of Review: This paper examined various literature searches from Science Direct, PubMed, World Health Organization official reports, Ministry of Public Health Cameroon reports, United Nations Population Fund (UNFPA), Centre for Disease Control and Prevention (CDC), and Scopus.

Results: The burden of RTIs is not only felt medically but economically as most victims are often left to cater for their injuries from their personal expenses with little or no government assistance. Although there is a significant lack of data on the exact number of deaths related to road traffic accidents due to poor reporting systems, a variety of factors account for this including; unequitable resource distribution, lack of well-trained paramedics, mismanaged funds, and improper, control, and management of existing road traffic policies.

Conclusion: The steady rise in RTIs in Cameroon has cut short the lives of most young people, adversely affected Quality of Life, increased economic burden, we are confident that the best approach to reducing the fatality rate from road accidents is by reviewing and amending policies governing transport systems in Cameroon.

Keywords: Road Traffic Accidents; Cameroon; sub-Saharan Africa; Policies

1. Introduction

Road traffic injuries (RTIs) are becoming a key global health concern, considering the fact that this is a major cause of disability and death all over the world. The greater burden of RTIs is borne by Low- and middle-income developing countries owing to increased urbanization and motorization, low implementation and adherence to road safety laws, and poor road infrastructure. Despite all the policy amendments and other involvement in reducing the rate of RTI, it remains so high especially in SSA countries. Also, these RTIs are not registered so, the existing data hardly reflects the true incidence in sub-Saharan Africa (SSA) and other low-income countries [1]. Data from the Global status report on road safety 2018 launched by WHO shows that the number of annual road traffic deaths has reached 1.35 million. The highest rate of this road traffic deaths being in Africa (26.6/100,000people) followed by Southeast Asia (20.6/100,000 people). In fact, road traffic injuries are now the leading killer of people aged 5-29 years. The greater burden of RTIs is borne by pedestrians, cyclists, and motorcyclists, especially those in developing countries [2].

* Corresponding author: Adanze Nge Cynthia ORCID: 0000-0003-3802-9653

In Cameroon like in several other sub-Saharan African (SSA) countries, the leading cause of RTIs is poor road infrastructure which includes untarred, poorly tarred/ unmaintained roads and lack of road signs/disregard for the existing ones [3]. Lack of investments in road safety results in the increasing case of accidents in Cameroon, which records an average of 16,583 road accidents each year, killing more than 1000 people, according to official figures and over 6000 according to WHO estimates [4].

2. Disease burden

2.1. Shift from Communicable Diseases (CDs) to Non-Communicable Diseases (NCDs)

Communicable diseases (CDs) also known as infectious diseases as described by the Centre for Disease Control (CDC) are diseases that can be transmitted from person to person via blood and bodily fluids, air, food or animal [5]. These diseases can be spread in various forms such as; direct physical contact with an infected person (staphylococcus), sexual intercourse (for example HIV, gonorrhea), air-borne, fecal-oral route (hepatitis A, cholera, typhoid), droplet spread and contact with contaminated surfaces or objects [6]. Over the decades, infectious diseases continue to pose a big problem especially in Low and Middle Incomed Countries (LMIC) and are known to be the major causes of mortality especially in Africa. The most common infectious diseases in Africa are malaria, HIV/AIDS, cholera, tuberculosis, hepatitis, schistosomiasis, Ebola, meningitis, lymphatic filariasis and SARS [7]. According to global disease burden statistics, the most common infectious diseases in Cameroon are malaria, HIV/AIDS, diarrheal diseases and tuberculosis with malaria and HIV/AIDS being the top two causes of mortality [8].

On the other hand, non-communicable diseases (NCDs) otherwise known as chronic diseases are lifelong conditions mostly as a combination of genetic, behavioral, environmental and physiological factors. The main type of NCDs include cardiovascular diseases (CVDs), cancers, chronic respiratory diseases, diabetes and the recently added mental health related disorders [9]. Although NCDs are more common in the developed countries, they disproportionately affect people in low-and middle-incomed countries, Cameroon inclusive, accounting for greater than three quarters of deaths related to NCDs [10].

However, there has been a noticeable steady increase in the burden of NCDs in sub-Saharan Africa especially marked increased incidence in cardiovascular risk factors like increased physical inactivity, hypertension, obesity and unhealthy diets [11]. These facts were further backed by a study carried out by Hebe Gouda and colleagues whose survey analysis revealed that there is a significant increase in the disability-adjusted-life-years (DALYs) due to NCDs in sub-Saharan Africa from 90·6 million DALYs in 1990 to 151·3 million DALYs in 2017 [12]. This upsurge has been ascribed partially to reasons such as the growing ageing population in sub-Saharan Africa, rapid unplanned urbanization and rapid adoption of unhealthy lifestyle such as increased tobacco consumption [13].

The 2017 report by African Population and Health Research Centre reported that NCDs accounted for 31% of total deaths in Cameroon with cancers (31%) and cardiovascular diseases (11%) being the most common causative factor [14].

In addition, researchers have also been able to establish a link between CDs and NCDs, revealing that most persons with CDs are more at risk of developing NCDs. One of such studies found out that people living with HIV/AIDS had greater risk of dying from a cardiovascular disease [15]. The 2015 Transactions of the Royal Society of Tropical Medicine and Hygiene report cited that infectious diseases were responsible for 26% of cancer cases in developing countries [16]. Since NCDs advances slowly but persist for a longer time, their morbidity impact is higher particularly in the poorer communities who underreport NCDs thus making early-diagnosis very challenging and difficult to manage in so doing making prevention problematic and decreasing productivity and life expectancy.

2.2. Road Traffic Injuries

The United Nations Economic Commission for Europe defines road traffic injuries (RTIs) as any accident that occurred or originated on a public road or street, resulting in the death or injury of one or more people and the involvement of at least one moving vehicle. Collisions between vehicles, between vehicles and pedestrians, and between vehicles and animals or fixed obstacles are examples of these accidents. It also considers single vehicle accidents in which only one vehicle is involved with the involvement of no other road user [17].

Road traffic injuries (RTIs) have been known to be the 8th leading cause of death in sub-Saharan Africa and the number one cause of death in children and young adults within the ages of 5-29 years positioning above communicable diseases

like malaria and tuberculosis [18]. According to the 2016 global burden of disease estimates, if no action is taken, RTIs are anticipated to be the fifth principal cause of death worldwide by 2030 as the death toll continues to increase [19].

Road traffic injury related deaths have increased by over by 84% in sub-Saharan Africa since 1990, almost doubling the increase globally [20]. The burden is even worse because most African countries suffer from very high out-of-pocket health expenses with a wealthy minority being able to afford health insurance. Consequently, the expenses related to RTIs are borne by the victims and their families thereby increasing the economic burden on those involved by further impoverishing them [21].

The 2015 Transactions of the Royal Society of Tropical Medicine and Hygiene report cited that road injuries were accountable for 8% of total deaths in Cameroon [16]. It is also one of the top ten causes of death in Cameroon, having risen to ninth place in 2019 from tenth place in 2009 and also ranked 7th for causing most death and disability combined [8].

With all of this mounting evidence, as the saying goes, more action and less talk are needed to reduce the rate of accidents, particularly in LMICs like Cameroon, which not only lacks a sophisticated health system to manage severe RTIs, but also lacks financial incentives to cover the treatments of road traffic accident victims.

2.2.1. Road Traffic Accidents in Africa

According to statistics from WHO, the risk of road traffic accidents in Africa is steadily on the rise estimating road traffic fatality from 24.1 per 100,000 people in 2010 to 26.6 per 100,000 people in 2016 [2]. This report also highlighted that the highest rates of road traffic deaths are recorded in the African region whereas the European region had a relatively low rate below the global average of 9.3 per 100,000 people compared to the global rate of 17 per 100,000 people.

In addition, the 2015 WHO status report on road safety, one of the biggest challenges faced in addressing the increasing rate of RTIs in Africa, was the lack of detailed knowledge on the number of road accidents [22]. Most RTIs figures are based on estimations with most being underreported especially accidents with no known fatalities. Most African RTIs are reported by police however the police are not always present at the site of most accidents especially in the cases of pedestrian accidents, accidents involving bicycles and single-vehicle accidents thereby creating a huge information debt and faulty data [23]. This fact is backed by a study that was carried out in Ethiopia where reports showed that while the police recorded 57.4-60.9% of road deaths and 23.5-23.9% of injuries, the hospital recorded 31.5-33.4% of road deaths and 55.2-56% of injuries with most pedestrian accident cases being underreported. This study concluded that both reporting systems independently provided inaccurate coverage data on road traffic related deaths and injuries [24].

The African union (AU), in collaboration with organizations like United Nations Economic Commission for Africa (UNECA) developed the African Road Safety Action Plan 2011-2020 which has five pillars namely road safety management, safer roads and mobility, safer vehicles, safer road users and post-crash response [25]. However, a mid-term review in 2015 by UNECA revealed that most African countries were still far behind on implementing the five pillars especially the aspect of road safety management [26].

The 2019 world bank report on Road accidents in Africa mortality rate per country further confirmed that African countries recorded the highest number of deaths due to RTIs with Zimbabwe topping the chart as seen in table 1 below [27].

Table 1 Road accidents in Africa: mortality rate per country, 2019

Country	**Mortality rate per 100 000 inhabitants**
Zimbabwe	41
Liberia	39
Central African Republic	38
South Sudan	37
Burundi	36
DR of Congo	35
Namibia	35

Malawi	33
Guinea-Bissau	32
Chad	32
Tanzania	31
Burkina Faso	31
Cameroon	30
Mozambique	30
Guinea	30
Congo	30
Gambia	30
Rwanda	29
Uganda	29
Madagascar	29
Togo	29
Kenya	28
Ethiopia	28
Benin	27
Somalia	27
Sudan	27
Botswana	26
Angola	26
Ghana	26
Mauritania	26
Niger	26
Côte d'Ivoire	24
Gabon	24
Senegal	24
Mali	23
South Africa	22
Libya	21
Algeria	21
Zambia	21
Nigeria	21
Morocco	17
Tunisia	17
Mauritius	12
Egypt	10

According to this world bank data, the world mortality rates due to RTIs was 17 deaths per 100,000 inhabitants and that for sub-Saharan African stood at 27 deaths per 100,000 inhabitants. The only African countries according to this data report with death rates due to RTIs below the world standard were Mauritius and Egypt while Morocco and Tunisia had exactly 17 deaths per 100,000 inhabitants.

Cameroon death statistics due to road traffic accidents stood at 30 deaths per 100,000 inhabitants in 2019, considerably higher than both the world and SSA bench marks [28]. Shockingly, WHO 2020 road traffic accidents related deaths reports illustrate that this number has increased to 40.18 deaths per 100,000 inhabitants in 2020 and Cameroon currently ranks 24th in the world as seen in table 2 [28].

Critically looking at the WHO 2020 road traffic accidents related deaths reports, one can conclude that most African countries have made little or no efforts in tackling the issue of road traffic accidents. The death polls of road traffic related accidents keep increasing with African countries occupying7 out of the top ten countries worldwide with the highest deaths related to road traffic accidents.

Table 2 shows that countries such as Zimbabwe, Liberia, and Malawi had a significantly higher number of road traffic fatalities in 2020 as compared to 2019 whereas countries like Tunisia, Mauritius have made efforts in curbing down these deaths.

In the 2021 World Bank Global Safety report, Malawi attributed the high rate of RTIs to driving under the influence of alcohol. A Malawian study found that 20% of professional bus, minibus, and truck drivers, the most common modes of transportation, were involved in crashes when their blood alcohol content (BAC) exceeded the legal limit [29].

Can we attribute these deaths to both government and civilian negligence? Or, alternatively, what are the reasons why a continent that produces and drives fewer cars than developed countries still has the highest number of road traffic fatalities?

Are African countries taking enough implementing actions to stop the increasing trend in road traffic related deaths or are they just mere archived policies?

Despite the generous incentives and aid gotten from organizations such as the World Bank Group, WHO, Global Road Safety Facility, why is there no significant progress?

Table 2 Road accidents in Africa: mortality rate per country, 2020

Country	Mortality rate per 100 000 inhabitants	World rank
Zimbabwe	63.5	2
Liberia	56	4
Central African Republic	46.5	13
South Sudan	50.9	9
Burundi	52.1	7
DR of Congo	39.8	25
Namibia	44.1	14
Malawi	57.1	3
Guinea-Bissau	41	23
Chad	42.5	18
Tanzania	49.3	10
Burkina Faso	43.3	16
Cameroon	40.2	24
Mozambique	48.9	11

Guinea	38.4	29
Congo	39.7	27
Gambia	51.3	8
Rwanda	43.9	15
Uganda	53.6	6
Madagascar	42.1	20
Togo	34	31
Kenya	48	12
Ethiopia	42.4	19
Benin	34.4	38
Somalia	38.9	28
Sudan	36.4	33
Botswana	30.4	48
Angola	30	49
Ghana	31.3	46
Mauritania	31.2	44
Niger	33.4	41
Côte d'Ivoire	33.4	42
Gabon	28.5	43
Senegal	35.1	35
Mali	29.5	51
South Africa	22.7	61
Libya	22.9	59
Algeria	21.8	67
Zambia	32.9	43
Nigeria	27.3	54
Morocco	17.3	86
Tunisia	16	91
Mauritius	10.9	122
Egypt	11.8	116

2.2.2. Road Accident Casualty Characteristics

Cameroon has all the major routes of transport that includes, air, road, rail, and water, but as many other countries the major and most affordable means of transport is road transport. Roads provide more access to areas than all the other means and the major users include pedestrians, motor bikes, buses (travel agency owned buses), trucks, and other private and commercial vehicles [30].

According to WHO report, more than half of road traffic accidents involved vulnerable road users especially pedestrians, motorcyclists, and cyclist [31]. Because of their frailty, older people and children have a higher fatality rate when injured; young people are also more active and frequent road users, and thus could be severely injured in any vehicular collision. They are considered vulnerable road users because they are more prone to any injury in the case of any collision since they have little or no protection that could absorb the impact [32]. Some road user behaviors, particularly

those of vulnerable road users, such as using phones while walking (pedestrians) or driving, and not wearing helmets and seatbelts, put them at high risk of injury [33].

Despite the fact that the majority of road accident casualties are vulnerable road users, there is another major issue in Cameroon regarding the attitude of onlookers and passers-by during an accident. Most people either stand by and take pictures to post on social media, or they have no idea what to do even if they want to help. The lack of basic first aid knowledge in the aftermath of an accident is a major problem in Cameroon. Why are basic first aid measures for dealing with RTI victims not taught at every level of education, regardless of whether you major in science or art? (As most of such trainings are usually limited to the science students). How many motorcycle riders and road users have basic first aid training in dealing with RTIs? These are the questions that must be addressed if we are to reduce RTI-related fatalities.

That notwithstanding, safe road designs, safe walking routes, separated cycle paths, and, most importantly, the implementation of road safety measures will significantly improve road safety in Sub-Saharan African countries, particularly Cameroon.

2.2.3. Road Safety Policies in Cameroon

In 2018, a workshop organized by the United Nations Secretary-Special General's Envoy for Road Safety in Cameroon identified three major causes of RTI deaths: drivers' lack of attention and distraction (30.67%), over speeding (19.97%), and drivers' lack of control (18.53%). He also stated that one of the major reasons for the increase in road traffic injuries is the country's poor road network, which includes numerous potholes, poor rainwater drainage, disorderly parking, a lack of pedestrian and cycle paths, and poor signaling [34]. All these statistics exclude the high rate of under-reporting RTI cases by different data-collection agencies thereby making RTI-related information unreliable and consequently rendering effective policy making very difficult [35].

The Safe System Approach is one of the strategies implemented in Cameroon to reduce RTIs. It is based on the principle that there is no tolerable level of road deaths and serious injuries with five principal components explicitly; Establishing robust institutional governance, sharing responsibility, strengthen all road safety pillars, prevent exposure to large forces and finally to support safe road-user behavior [36].

There have been three individual financed road-safety initiatives in Cameroon; a World Bank funded project on the design and implementation of traffic accident databases on the information system for road safety in Cameroon, European commission funded project on road-safety management capacity review (RSMCR) within the SaferAfrica research project and finally a UNICEF funded project on Cameroon’s road safety performance review [36].

The World Bank funded project from March 2015 to July 2019 in Cameroon introduced a centralized and integrated system of data collection, management and analysis of road-crashes in Cameroon including integrating hospital records in this data system collection. However, the perks of such projects are often enjoyed by institutions mostly based in Yaoundé and Douala representing just 2 out of the 10 regions of Cameroon. Despite all the money contributed by entities such as the Road Fund, Cameroon lacks well laid out strategies to properly utilize such funds, lack of routine evaluation of existing road safety policies to re-strategize, lack of scientifical literature on the social costs of RTIs and improper communication on project outputs to stakeholders [37].

2.2.4. Ambulance and Emergency services in Cameroon

It is reported that less than 1% of the population in low- and middle-income countries have access to formal emergency transportation services and the few that have the access, transport is usually between medical facilities and less from site of injury to a medical facility [38].

Cameroon has no known official emergency ambulance number; only local numbers can be used to access ambulance services and majority of the population are neither aware of these local numbers nor are they well informed on the emergency services. This can be proven from a study carried out in Yaoundé which indicated that about 17% of RTI victims died without reaching the hospital [39].

As of now, the exact amount of reliable government owned ambulance services is not known. However, there are just a few in the economic capital, Douala, and the administrative capital, Yaoundé indicating high unmet needs for emergency services [40]. There are other private owned ambulances which serve the needs of a specific population such as the Doctors Without Borders (MSF) who operate a free 24/7 ambulance in the South West regions of Cameroon [41] and the mini ambulance service provided by the ONETrack International (a non-for-profit organization) in the conflicted

South West region of Cameroon [42]. This implies that most road traffic accident victims are transported to health care facilities via taxis, private vehicles or motorbikes and in worst case scenarios, most are left unattended too for a long period of time before help comes their way.

Emergency Medical Service (EMS) systems, defined as "Formalized prehospital care, provided by emergency care professionals who respond to medical emergencies within a well-defined jurisdiction [43], play a vital role in emergency care systems by providing timely, safe, on-scene evaluation, stabilization, and transport of patients to an appropriate facility. Research on the emergency medical service systems in Africa revealed that just about 25 well defined EMS systems exist in about 16 countries only [44]. This means that less than 1 in 3 African countries have an EMS system in place and some of the reasons for this number includes the lack of technical experts, inadequate advocacy/information, under-development of facilities for emergency care (example health centers) and the costs of setting up the EMS. However, experts agree that a well-implemented EMS system is the most cost-effective public health intervention. One of the major barriers to accessing emergency services as mentioned earlier above, is inadequate knowledge or negative attitudes about ambulance care. Some countries have implemented toll-free emergency telephone number, but it is still not known by many and so public health education especially in case of emergency is required. The hotline for Cameroon ambulance service is 119 [45].

3. Conclusion

In summary, irrespective of the amount of funding that will be generated to solve the problem of RTIs in Cameroon, the lack of proper management and implementation of these funds will continue to be a problem. In addition, the unequal distribution of the perks of such funding continues to be a problem. With focus on just the Centre and Littoral regions ignoring the other eight regions of Cameroon is ethically unjust and unfair as these other regions are equally plagued by road traffic accidents. The government should put more investment in post-accident care by providing more ambulance services, qualified emergency health care personnel and decrease the out-of-pocket health expenses incurred by the victims and victims' families. Because RTIs have taken the lives of many people, particularly young people, Cameroon still has a lot of work to do to reduce the rate of RTIs especially in their attempt to achieve Universal Health Coverage by 2030.

Recommendations

- The government of Cameroon should focus more on actions and implementing the already existing policies aimed at ensuring road safety especially in the aspect of concise data reporting
- Equal distribution of health resources to all ten regions of the country and not just limited to the Centre and Littoral regions of Cameroon. At least every region should be entitled to one fully equipped ambulance with well-trained emergency management staff.
- Road traffic officers should be well trained and all violators of road traffic signals should be appropriately sanctioned without discrimination.
- Multisectoral collaboration between the ministries of public health, transportation and basic, secondary and tertiary education should be enforced. Basic first aid care on how to manage an accident scene should be taught at all education levels and not just to science students.
- The government should invest on building quality roads to decrease RTI-related risk factors such as potholes, poorly drained roads, lack of speed breaks and road traffic lights.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that there is no conflict of interest regarding this manuscript.

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