Epidemiological Study of Road Traffic Crashes in the Western Region of Cameroon

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ABSTRACT

Background: Traumatic injuries resulting from road traffic crashes are a major cause of death and disability worldwide, with a global burden that is on the rise. In Cameroon like the rest of sub-Saharan Africa, more and accurate data on road traffic crashes outcomes and therapeutic care are needed to improve treatment and prevention. **Objective:** This study aims to determine the epidemiological features of the road traffic crashes in the western region of Cameroon. **Methods**: This study was a cross-sectional study which included all of individuals involved in road traffic crashes and admitted in health facilities located in and around the western road corridor the period from January 2019 to September 2023. International Classification of Diseases, Tenth Revision (ICD-10) was used as diagnostic criteria. Demographic variables, injury circumstances, hospital variables such as length of stay, time of admission, anatomical parts of injury according to Abbreviated Injury Scale (AIS) classification were derived from records. **Results**: Of total 812 crashes reported within the period of study, the victimology rate was 87.1% with various diagnoses: limb trauma without bone lesion (15.9%), fractures of one or more limbs (09.9%), multiple trauma (20.0%). **Conclusion**: Road traffic crashes cause enormous death and disability in this area and more road traffic preventive programs should be enforcement in these areas to reduce incidences road traffic crashes.

Keywords: Road traffic crashes, traumas, injuries, road safety, epidemiology, West-Cameroon.

INTRODUCTION

A road traffic crash (also known as road traffic accident or road traffic collision) is any accident involving at least one road vehicle in motion on a public road or private road to which the public has right of access, resulting in at least one injured or killed person (United Nations and European Union, 2019). Road traffic crashes (RTCs) are a growing public health concern that impact on all sectors of society. They are one of the leading causes of premature death and disability worldwide and estimated to be the eighth leading cause of death globally, with an impact like that caused by many communicable diseases (WHO, 2015). According to some estimates, worldwide deaths from RTCs have increased from about 999,000 in 1990 to about 1.19 million in 2023, accounting for about 50 million injuries. The number is projected to rise to two million deaths per year by 2030 (WHO, 2023a). RTCs are increasing as societies become more motorized. Of all the systems human beings deal with daily, road traffic systems are the most complex and the most dangerous resulting to over 3000 persons dying daily in the world (Polider et al. 2015). Low- and middle-income countries account for about 92% of deaths and 90% of the annual disability adjusted life years lost (DALYs) due to road traffic injury (Khalaf et al., 2023). Projections made by WHO show that between the years 2000 and 2030 road traffic deaths will decline by 30% in high income countries but will increase substantially in low- and middle-income countries (WHO, 2023b). Despite some recent improvements in global road safety, there have been persistent disparities in the burden of RTCs across world regions. In 2019, RTCs accounted for 3.8% of the total deaths in Africa, 3.0% in the Eastern Mediterranean, 2.4% in South-East Asia, 2.3% in the Western Pacific, 2.2% in the Americas, and 0.8% in Europe (WHO-d, 2022). At 24.1 deaths per 100,000

populations in 2020, the continent of Africa has the highest traffic-related mortality rate (WHO, 2023c). Among African countries, Cameroon has a relatively high burden with 2,330 road traffic crashes in 2014 resulting in 790 deaths (World Bank, 2015). If required concerted efforts for effective and sustainable prevention are not put in place, RTCs will become the third leading contributor to the global burden of disease and injury by the year 2030 (GBD, 2019). Several factors influence the risk of crash involvement which have been regrouped into human, road and vehicle factors. These factors include inappropriate or excessive speed; presence of alcohol, medicinal or recreational drugs, fatigue, being a vulnerable road user in urban and residential areas, travelling in darkness, vehicle factors such as braking, handling and maintenance; defects in road design, layout and maintenance, inadequate visibility due to environmental factors and poor road user eyesight (Adeloye et al., 2022; Bucsuházy et al., 2020; Jonathan et al., 2028). An increasing trend in crash fatalities has been observed in Cameroon with human factors contributing to over 70% of all the causes of accidents (Sobngwi-Tambekou et al. 2010). Traffic fatalities increased from under 400 in 1972 to over 1,150 in 2016, i.e. an annual mortality rate due to injury of 101.8 per 100,000 populations which ranks among the highest in sub Saharan Africa (Nyagwui et al., 2016). A pilot study done in Cameroon showed that injuries constitute a significant proportion of emergency visits and utilization of surgical services (Juillard et al., 2014). Individuals involved in those road accidents are from various age groups and those who are affected or killed are mostly people in their prime productive age. The deaths could be immediately after the occurrence of the accident or later, after a hospital care. Most often, the persons reported death sustained a severe injury with improper prehospital care or a late hospital care. Injured people are often transported to hospitals by persons with no training in trauma or emergency care. The proportion of patients who die before reaching hospital in low- and middle-income countries is estimated as at least twice that in high-income countries, this suggest that strengthening pre-hospital systems could have enormous global impact. This problem drastically needs targeted research to identify methods of reducing fatalities due to RTCs. That is why this research has been carried out with the primary goal to develop a clear understanding of the therapeutic management of RTCs in Cameroon to inform advocacy actions and policies. The specific aims of this study are to grasp the road traffic injuries features, to point out anatomic regions that are most affected during RTCs, and to describe the therapeutic management of patients admitted to health facilities to generate the evidence needed to inform interventions and policies that address the specific needs of patients with RTCs during and after treatment.

MATERIALS AND METHODS

Study Design and Settings: This cross-sectional observational study was conducted at 10 selected hospitals located in the western road network of Cameroon, with Yaounde as starting point (Figure 1). Not only is this western road corridor with one of the highest traffic densities, but it is also that with the highest number of accidents in the country and is equally classified among the deadliest highways in Cameroon. Hospitals were selected to include representation in each road segment of the corridor where road traffic crashes did occur. Hospitals were identified and selected based on previous research collaborations between organs in charge of data management on road accidents in the country. Where possible, hospitals that were designated as trauma centers or that were present in large urban centers were prioritized.

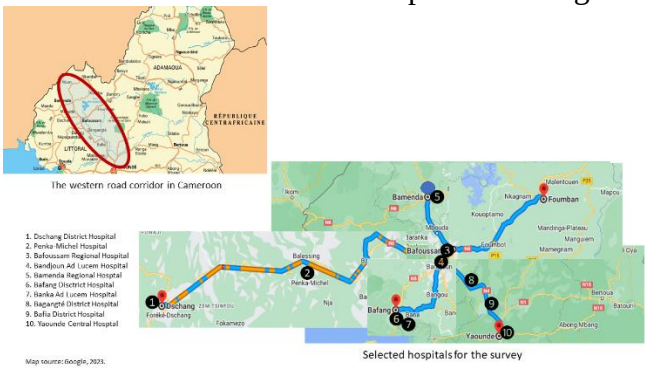

Figure 1: Identified and selected hospitals for the survey

Eligibility Criteria: The study population included all casualties (persons slightly or seriously injured whether passengers/drivers or pedestrians, persons killed) of either sex admitted to the hospital because of a moderate to severe RTC, which is defined as the injury being severe enough to require hospitalization for at least 24 hours. Study participants included patients admitted to the emergency department as well as other relevant hospital departments or units (eg, neurosurgical or orthopedic surgery units). Participants were able to give consent or had a suitable proxy who gave consent on their behalf if they were unable to do so. Individuals were excluded from the study if they were discharged <24 hours after being admitted to the hospital or were unable to communicate verbally and did not have a proxy.

Recruitment and data collection: (***i-overview***) Patients were screened for inclusion and exclusion criteria by the data collectors at each health facility at the following two points: upon arrival at the emergency unit and at discharge from any unit of the hospital. This allowed us to capture patients who came directly to the hospital, as well as patients who were transferred from other facilities and bypassed the emergency department; and therefore to avoid the recruitment bias. Two instruments that were used for data collection are a hospital-based RTC surveillance tool and a follow-up disability-related assessment questionnaire. The hospital-based RTC surveillance tool includes the following: general patient information, prehospital care, RTC details, initial clinical assessment and care provided, outcome. Informed consent was obtained from the patients (or proxy) in the hospital for enrollment in the study. (***ii- Hospital-Based Data Collection***): Data was collected by obtaining information from the patient's medical record and by conducting interviews with the patient (or caregiver) directly. We aimed to extract the following information from the medical record, depending on the availability: sociodemographic information (age, sex, education, employment status, current partnership status, total number of persons living in household); prehospital care (if care was provided, by whom, type of care provided, mode of arrival at hospital, and transport time to hospital); RTI details (type of road, type of vehicle, mobile use, counterpart, and safety equipment use); and initial clinical assessment and care provided (vital signs, initial Glasgow Coma Scale, suspected alcohol and drug use, treatment, region of injury, pathology, operation, and number of days in the intensive care unit). We collected the following information through patient (or proxy) interviews: payment information (if a fee was paid, amount paid, type of service paid for, hospitalization cost, means of payment) and disability history (if the patient had a disability before RTC, severity of the disability, and domains of the body affected by the disability). (***iii- Data Collection software, storage, and management***): The Survey Solutions software developed by the World Bank was used for data collection (World Bank, 2018). Survey Solutions can operate in mixed mode, and data can be collected offline on tablets (computer-assisted personal interviewing), on the web using a web interface (computer-assisted web interviewing), or via phone interviews (computer-assisted web interviewing).

Statistical analysis and Ethics approval: The IBM® SPSS® software platform (version 17.0) was used for the data analysis. Descriptive statistics were generated for several variables captured in the hospital-based tool to examine the demographic, clinical, and treatment characteristics of the initial study sample. Descriptive statistics for the prevalence of events and quantitative variables were used and differences between demographic and injuries situation were calculated by t-test and chi square test. Effective factors in hospital mortality rate were determined using logistic regression. A 2-sided p-value of less than 0.05 was considered statistically significant.

Ethics approval was obtained from the Institutional Ethics Committee for Research for Human Health (CEIRSH) of the School of Health Sciences of the Catholic University of Central Africa. Potential participants were informed of the aims and content of the study and were required to give written, informed consent before enrollment. The participants did not receive any compensation for their participation in the study. All data collected in the Survey Solutions software for this study was deidentified.

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RESULTS

RTCs overview: Among the 812 RTCs reported on the western corridor of Cameroon between 2019 and 2022, 707 have led to casualties (i.e. a victimology rate of 87.1%), including 139 persons killed at the scene of the accident, representing a direct death rate of 49.7% (Figure 2). Among the 568 injured passengers or persons, 517 were admitted to the various health facilities located within the perimeters of the road corridor, i.e. an admission rate of 91.0%. However, 23 injured persons did not accept hospital treatment and left without the advice of healthcare staff. In addition, 9 injured passengers either He withdrew from the study or did not give consent to participate. Finally, only 485 participants were enrolled in the study.

Figure 2: Description of Road traffic crashes reported between 20019 and 2022

Sociodemographic characteristics of injured patients: Over the 485 victims, 287 were male, i.e. a sex ratio of 1.45/1. Their ages ranged between 6 and 87 years with an average of 29 ± 13.6 years. Most of the victims received education, including 38.7% from secondary level and 25.6% from tertiary level. At the time of the accident, 43.7% were either self-employed or worked in the informal sector, and 24.4% were inactive or unemployed.

Table 1: Sociodemographic characteristics of injured patients

	Frequency (%)	OR (CI 95%)	Chi 2	*P* value	Dl.
Gender					
Male	287 (58.4%)	—	—	—	2
Female	198 (41.6%)	—	—	—	
Age range					
[6-20 years [	96 (19.8%)	—	—	—	4
[20-40 yeras [	217 (44.7%)	—	—	—	
[40-60 years and more [	172 (35.5%)	—	—	—	
Socio-professional status					
Unemployed	118 (24.4%)	—	—	—	1
Employee	99 (20.4%)	—	—	—	
Self-employment-Informal sector	212 (43.7%)	—	—	—	
Retired	56 (11.5%)	—	—	—	
Level of education					
No	54 (11.1%)	—	—	—	2
Primary	119 (24.6%)	—	—	—	
Secondary	188 (38.7%)	—	—	—	
University	124 (25.6%)	—	—	—	

Road traffic injuries features: Table 2 represents mechanism of accidents in terms of vehicle type along with adapted codes (ICD-10) which shows that car-car crashes accidents had the highest frequency followed by motorcycle-car and car accidents involving pedestrians. Type of vehicle was significantly different in different groups based on place and time of accident ($p \leq 0.001$). Those road crashes occurred predominantly in the night and early in the morning. Most victims were transferred to hospital (67.2%) using their own means or with the help of the relatives, friends, or passers-by. Other transferred vehicles were taxis, police

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or gendarmerie cars (30.3%), and ambulance (02.47%).

Table 2; Mechanisms of accidents associated with injured patients admitted to hospitals

	Frequency (%)	OR (CI 95%)	Chi^2	*P* value	Dl.
Place of accident					
Rural	184 (37.9%)	2.2 (1.35-3.13)	2.172	0.004*	2
Urban	301 (62.1%)	1			
Time of accident					
Morning	117 (24.1%)	1			
Noon	61 (12.6%)	1.4 (2.00-4.21)	4.231	0.120	
Evening	96 (19.8%)	2.8 (1.35-6.95)			2
Night	211 (43.5%)	2.6 (1.35-5.63)			
Road crashes type and vehicle codes (ICD-10)					
Car- motorcycle (V50)	32 (06.6%)	3.81 (1.55-12.97)			
Reversal motorcycle (V20)	22 (04.5%)	4.12 (3.18-6.00)			
Car- animals (V50- V60)	09 (01.8%)	—			
Car- bicycle (V20)	24 (05.0%))	—			
Car- Pedestrian (V03.1-V04.1)	41 (08.4%)	3.39 (2.06-5.68)	2.354	0.005*	1
Motorcycle- bicycle (V20)	20 (04.1%)	—			
Motorcycle- Pedestrian (V01.1)	39 (08.04%)	2.5 (0.83, 7.5)			
Bicycle- Pedestrian (V02.1)	08 (01.6%)	—			
Motorcycle-motorcycle ((V20)	47 (09.7%)	0.47(0.25-0.88)			
Reversal car (V50-V60-V70)	23 (04.7%)	4.7 (1.67-13.03)			
Car- car (V50-V60-V70)	220 (45.4%)	3.39 (2.06-5.68)			
Transfer to Hospital					
Ambulance	12 (02.47%)	1			
Own means/relatives, friends, or passers-by	326 (67.2%)	3.81 (1.55-12.97)	2.354	0.512	2
Police/Gendarmerie	147 (30.3%)	4.12 (3.18-6.00)			

Therapeutic management: Generally, injured patients were transferred either to health facilities of the 4th category, i.e., districts hospitals (49.1%), or to those of the 3rd category i.e., regional hospitals (30.1%). Predominantly, injured patients were at first resort admitted at the medical-surgical emergencies units (52.4 %), scarcely in traumatology (01.8 %). Whatever the treatment unit, general practitioners were the first to took care of the injured persons (67.2%), whereas resident-doctors were those doing so in 1st and 2nd category health facilities such as general hospitals (13.0%). Care provided are presented in table 3, in which 70.5% of patients received surgical suture and bandages, whereas 41.4% had surgery. Very often, treatment of consisted of patients monitoring (62.1%) and hospitalization (30.3%). When necessary, the additional examinations requested were radiological examinations (radiography of the musculoskeletal system, abdomen, skull, ultrasound, electrocardiogram) and seat scanners (cerebral, abdominal).

Table 3: Outcome and care provision to victims of road traffic accidents admitted to health facilities

	Fréquency (%)	OR (CI 95%)	Chi^2	*P* value	Dl.
Type of health facilities					
General Hospital/University Hospital	101 (20.8%)	1			

Regional Hospital	146 (30.1%)	4.7 (1.67-13.03)	4.683	0.224	1
District Hospital	238 (49.1%)	3.39 (2.06-5.68)			
Admission unit					
Medico-surgical unit	254 (52.4%)	1	39.016	<0.001*	1
Emergency Unit	148 (30.5%)	2.5 (0.83, 7.5)			
Traumatology	09 (01.8%)	—			
Neurosurgery	74 (15.3 %)	0.47(0.25-0.88)			
Practicing doctor					
General Pysician	326 (67.2%)	1	5.683	<0.003*	1
Internal Physician	96 (19.8%)	1.3 (0.98-7.01)			
Résident-Doctor	63 (13.0%)	2.8 (1.35-6.95)			
Care provided					
No care provided	26 (05.4%	1.8 (0.94-4.70)	3.201	<0.015*	3
Injection/perfusion	251 (51.7%)	3.5 (2.34-5.01)			
Surgical suture and bandages	342 (70.5%)	—-			
Patient immobilization	194 (40.0%)	2.6 (1.35-5.63)			
Surgery	201 (41.4%)	1.4 (2.00-4.21)			
Type of care provision					
Medical consultation only	37 (07.6%)	0.73(0.45-0.98)	18.280	0.370	2
Patient monitoring	301 (62.1%)	4.2 (2.04-11.31)			
Hospitalization	147 (30.3%)	2.8 (1.35-6.95)			
Additional medical examinations ϕ					
Radiological examinations	392 (80.8%)	1	2.741	<0.004*	2
Chest/brain/spine scan	274 (56.5%)	4.72 (1.67, 13.03)			
Biological examinations	69 (14.2%)	3.39 (2.06-5.68)			

ϕ: Depending on type of care to be provided, several additional examinations could be required from the same victim.

Epidemiologic features: Regarding anatomical affected regions, the upper extremities had the highest injuries followed by head and neck and lower limbs. Most of victims had multiple traumas. Table 4 indicates that diagnosis made in accordance with medical examinations, varied from limb trauma without bone lesion (15.9%), to fractures of one or more limbs (09.9%), to open facial wounds or scalp (22.7%), and multiple trauma (20.0%). Patients' outcomes were diverse: recovery and voluntarily discharge (13.8%), hospitalization (20.9%), referral to another health facility for specialized care (17.9%). Among the 485 victims treated, 141 died (94 males and 47 female), resulting from polytrauma (28 deaths), head trauma (14 deaths), pelvic trauma (7 deaths), and internal lesions (3 deaths).

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Table 4: Anatomical regions of injuries in victims of road traffic accidents admitted to medical centers, and patient's outcome.

	Fréquence (%)	OR (CI 95%)	Chi^2	*P* value	Dl.
Diagnoses made in accordance with medical examinations $^{\Phi}$					
Limb trauma without bone lesion	77 (15.9%)	1	3.683	0.001*	1
Limbs Fracture	48 (09.9%)	2.6 (1.35-5.63)			
Head trauma	37 (07.6%)	4.0 (1.59-10.93)			
open facial wounds or scalp	110 (22.7%)	—			
Limbs open wounds	91 (18.7%)	—			
Lacerations	160 (33.0%)	—			
Chest trauma	53 (10.9%)	1.4 (2.00-4.21)			
Pelvic trauma	81 (16.7%)	2.8 (1.35-6.95)			
Abdominal trauma & internal lesions	68 (14.0%)	—			
Polytrauma	97 (20.0%)	0.73(0.45-0.98)			
Outcome					
Recovery and Voluntarily discharge	67 (13.8%)	1	12.710	0.005*	1
Recovery with complications	89 (18.3%)	—			
Hospitalization with medical supervision	101 (20.9%)	6.13 (3.45-15.11)			
Transfer to other hospitals	87 (17.9%)	4.72 (1.67, 13.03)			
Dead	141 (29.1%)	0.83 (2.23- 10.85)			

$^{\Phi}$: The same victim could receive one or more diagnoses.

DISCUSSION

Data on epidemiology and pattern on injuries in low-income countries are still very scarce even though the burden of injuries in on the rise in these areas of the world (Nantulya and Reich, 2003; Romão et al., 2003). Injury epidemiology and control is still generally considered under-researched and relatively neglected in these areas. Road traffic accidents have been shown to be the most prominent cause of injuries worldwide (Zafar et al., 2018). Though developing countries account for an estimated 48% of motorized vehicles, they are the place where 91% of road traffic related fatalities occur every year (GBD, 2019). Though registry reports may underestimate the prevalence and actual burden of road traffic injuries in Cameroon, our analyses based on observations on the western road corridor give a clue about the burden, pattern of injury, injury characteristics and outcome of care of road traffic crash victims. In all, the study found out 812 injuries between January 2019 and December 2022: a burden compatible with that of Moafian et al. study (2013), but higher than a study performed in Tehran (Sehat et al, 2012) and Latin America (Bhalla et al., 2013). In fact, the western road corridor in Cameroon has many travelers especially in high seasons and nights, therefore higher rate of RTCs was predictable.

This study found that, the male sex was predominantly affected and there was a significant association with injury ($p < 0.05$), consistent with other studies which also found male predominance (Bashah et al., 2015). Yet a study in Vietnam showed that this ratio was lower (Anh et al., 2005). Regarding different age groups, the most traffic accident occurred for men between 20-29 years of age and for women in range of 30-39 years. As other studies, young people were the most victims of road accidents. This is so because the Cameroonian population is generally young and road traffic injuries usually target the most active component of the population. The majority of professional occupations involved in this study are usually those practiced by people with little or no formal education. Socio-economic factors, including level of education, are known to have an influence on the choice of mode of transport (Taniform et al., 2023). However, no matter the level of education, people are generally aware of the risks related to different modes of transport and the final choice is eventually related to the level of income which is generally low for

people with no formal education.

Most accidents occurred in urban and suburb areas followed by rural areas, similar to Pakistan (Ghaffar et al., 2004), but different from the study in Fars where most accidents were in rural areas (Heydari et al., 2013). In urban areas, car-car crash, car-motorcycle accidents were the most prevalent type of crashes, whereas in rural regions, car-motorcycle accident was the most common followed by motorcycle-pedestrian crash. Car-car crash was the cause of most RTCs followed by car-motorcycle and motorcycle-pedestrian. Yet, this contradicts the study in Tehran where most accidents dedicated to motorcycle-pedestrian accident (Sehat, op.cit). A study in Kenya showed that the highest rate of accidents involved car and motorcycles, compatible with our finding, still different from research performed in Egypt where pedestrians have more accidents (Hijar t al., 2004). Overall, the type of vehicles involved in road traffic injuries seem to vary widely from one area to another. Generally, while pedestrians, passengers and drivers remain the most commonly involved road users in developed countries and middle-income countries, low income regions have witnessed a constant change in the nature of vehicle involved to the massive advantage of motorcycles (Swaddiwudhipong et al., 1994; Zargar et al., 2006). The relatively limited number of pedestrians involved in our study is probably related to the low density of the population. whether in urban or rural areas, people have to travel relatively long distances to their destination and rather than walking, they would prefer to use the services of a commercial motorcyclist which are generally considered fast and affordable. Collisions between a motorcycle and a pedestrian have made the later to become more exposed, but this usually results in minor injuries which will probably not be captured by a hospital-based data collection system. This study found that most accidents occurred at night followed by evenings which was different from study conducted by Modarres (2014). This seems paradoxical when we know that night only accounts for 10% of road traffic. Anyway, the nighttime nature of accidents can be explained by the feeling of security due to low traffic (while visibility is considerably reduced), which leads to an increase in risk-taking and infractions (speed, non-compliance with priority signals, dangerous overtaking, etc.). In addition to traffic, the movement of trucks carrying goods on the road network of this corridor increases regularly during weekends due to high movements of people who travel by buses and personal vehicles to attend burials, funeral rites and other celebrations in the western and northwest regions.

Our findings indicate that most victims of accident were transferred to medical centers by relatives, friends, or passers-by personal cars, which is compatible with previous studies in Cameroon and Iran (Sobngwi-Tambekou et al., op cit; Rezaei et al, 2009). Admission rates after traffic injuries vary much from one report to another and from one region of the world to another (Chatukuta et al., 2021; Tobias et al. 2021). Beyaztas et al. (2002) report an admission rate of 41% in a study in which many patients were involved in tourist car accident. This rate is very different from the 16% and 17% reported respectively by Moghadam and Marmor under similar conditions (Moghadam et al., 2005; Marmor et al., 2005). The admission rate of 91% in our study seems to be special to our pattern of injury which combines most tourist cars, motorcycles, and pedestrians. Globally in our study, upper extremities injuries and upper body parts were the most important causes of hospitalizations, following head and neck and lower extremities. In details, head face and limbs were commonly reported as body areas more exposed to road traffic injuries, as well in all areas of the world (Ahmer & Siddiqui, 2021; Chichom-Mefire et al., 2018). Few studies report the trunk as a generally vulnerable area (Shrestha et al., 2017). An increasing number of reports point the lower limb as a vulnerable area and this seems to correlate with the increasing use of motorcycles as mode of transport (Zimmerman et al., 2012). Most patients seem to develop soft tissue injuries such as bruises and lacerations, often involving the cranio-facial region and the lower limbs. Fractures are also a frequently reported lesion, most often involving the lower limbs. Just as what is described in our findings, the most frequently encountered fractures bones are the tibia and the femur. Yasin et al (2021) reporting the severity of road traffic injuries in a developed country describe a 59% of injuries of moderate severity and identify pedestrians as more vulnerable to severe critical injuries. Few reports in African settings show some interest towards the severity of injuries (Bekelcho et al., 2023; Walugembe et al., 2020).

The outcome of care was marked by a mortality rate of 29.1%, and a vast majority were treated and discharged while a few were referred for continued care. Though other surveys suggest that death rates may have decreased due to a relatively improving prehospital and emergency response system in some African countries (Goosen et al., 2003; Boniface et al., 2016), the high death rate observed in our study is probably due to the same reasons because Cameroon still has a less functional prehospital and emergency response system. This rate was higher than mortality rate in Modarres study that included all those patients who were transferred to center of trauma and injuries and passed away during the hospital stay. What ever it is, accidents are responsible for 10% of death in the world, even higher than that of AIDS, Malaria, and Tuberculosis (The Global Fund, 2020).

CONCLUSION

Road traffic injuries are a global disaster and among the top public health problems in recent years. Among world regions, low-income countries share a larger amount of road traffic fatality rate (29.2/100,000 population), out of which Africa accounts for 20% of global road traffic deaths with nearly 272 000 deaths. Also, African RTCs have a significant number of the accidents under reported, mainly nonfatal injuries. From a total of the world's RTI fatalities, 90% occurs in low- and middle-income countries. Even though these low- and middle-income countries have a low number of registered motor vehicles, the number of road traffic deaths is alarmingly higher than in other countries. This study is then a model of a comprehensive report of both observational and hospital-based data with an attempt to address epidemiologic aspects related to road traffic crashes. It reinforces the most recent reports which all call the attention of decision makers on the influence of motorcycles on the pattern and severity of injuries in low-income settings. In particular, it stresses the vulnerability of road users (drivers, pedestrians, passengers) for further action to analyze the problem. Road traffic injuries can be prevented. Governments need to take action to address road safety in a holistic manner. This requires involvement from multiple sectors such as transport, police, health, education, and actions that address the safety of roads, vehicles, and road users. Effective interventions include designing safer infrastructure and incorporating road safety features into land-use and transport planning, improving the safety features of vehicles, improving post-crash care for victims of road crashes, setting and enforcing laws relating to key risks, and raising public awareness. Road traffic injury reduction measures should include strict law enforcement in order to maintain road traffic rules especially among commercial truckers, motorcyclists, and government vehicle drivers. Also, it is better to train drivers to be more alert and conscious in their travels.

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