

# Causes of road traffic accidents in Juba

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**Introduction:** Road traffic accidents (RTAs) are a major cause of death and disability in South Sudan. The purpose of this study was to investigate whether violation of traffic rules is the main cause of RTAs.

**Method:** A cross sectional study design was used with quantitative data covering January – December 2014. The main objective of the research was to understand the epidemiology of RTAs in order to develop preventive measures. A total of 1,725 cases from road RTAs data were extracted from the directorate of traffic police Central Equatoria state Juba and Juba teaching hospital.

**Results:** Most (99.5%) of the RTA drivers were not under the influence of alcohol. Most accidents were caused by male drivers (99%). The highest number of RTAs took place in August (11%). Drivers of private vehicles caused most accidents (37%). Most drivers (46%) were aged 20-30 years. RTAs occurred most often on city roads (89.83%).

**Conclusion:** This leads us to conclude that a comprehensive safety system is needed that are premised on the idea of community-based awareness of traffic rules and safety regulations. Resources are limited so there is a need to harness local resources including the local community. More efforts are needed to improve road safety education among the youth/ integrate safety into road design.

*Key Words: Road traffic accidents, private vehicles, alcohol*

## Introduction

A road traffic accident (RTA) is defined as accident which takes place on the road between two or more objects, one of which must be any kind of a moving motor vehicle. These accidents are among the leading causes of death in many parts of the world resulting in economic loss due to disability [1]. It is estimated that 3000 people die and 30,000 are seriously injured in the world every day with the majority of casualties coming from middle-income countries [2]. The issue of RTAs has become a great concern among the citizens of Juba city.

In Africa, Nigeria has the highest rate of RTAs; with accidents increasing by 43% and deaths by 110% between 1977 and 1983 [3]. Similar trends have been reported in East Africa. Road traffic related fatalities in Kenya increased by 578% and nonfatal casualties by 506% between 1962 and 1992 [4]. In Tanzania RTAs accounted for 56% of all patients admitted to Muhimbili Medical Centre due to injuries [4]. One of the contributing factors is the “road user factor” (i.e. the human factor that signifies the driver who is driving the vehicle or pedestrian who is using the road). In developing countries, including those in Africa, human factors are responsible for the most RTAs. These include road conditions (construction, surface, wet or dry), obstacles (e.g. debris on the road) and the landscape near the road [5]. A study in Dar-es-Salam showed that

buses and trucks were involved in a high proportion of crashes due to both a lack of safety standards and failure to adhere to existing ones [6].

In South Sudan, and particularly in Juba, which is one of the fastest growing cities in the region with an estimated population of over one million, RTAs are a major cause of deaths and disabilities [7]; because they affect mainly younger people they contribute to the poor economic development in the country. The long civil war has resulted in Juba’s infrastructure not being developed, so roads are very poor.

The national parliament of South Sudan passed the Road Traffic bill in 2011. However, there remains a lack of awareness and enforcement of these traffic rules and regulations. It is likely that poor availability/accessibility of public transport has resulted in an increased number of motorists, and subsequently, more RTAs. Although Juba City Council has installed traffic lights at major roundabouts, yet RTAs still occur. This is due to the fact that drivers are not familiar with the road signs, in other words lack of road safety education remains a challenge.

## Method

The study used a cross-sectional approach in which data of RTAs from January 2014 to August 2015 were collected. Microsoft Excel software version 2.0 was used to analyze the data.

**Table 1. Distribution of drivers by type of vehicle and driver's condition**

Vehicle Type	Driving under no influence of alcohol		Driving under influence of alcohol		Total	
	n	%	n	%	n	%
Private car	631	36.6	7	0.4	638	37.0
Pick up	53	3.1	0	0.0	53	3.1
Taxi	6	0.4	0	0.0	6	0.4
Toyota Hiace	149	8.6	1	0.1	150	8.7
Lorry	117	6.8	0	0.0	117	6.8
Bus	40	2.3	0	0.0	40	2.3
Heavy Truck	7	0.4	0	0.0	7	0.4
Motor cycle	462	26.8	0	0.0	462	26.8
Dafar (5 ton lorry)	13	0.8	0	0.0	13	0.8
Government land cruiser	111	6.4	1	0.1	112	6.5
Diplomatic vehicle	55	3.2	1	0.1	56	3.3
Trucks	71	4.1	0	0.0	71	4.1
<b>Total</b>	<b>1,715</b>	<b>99.4</b>	<b>10</b>	<b>0.6</b>	<b>1,725</b>	<b>100.00</b>

The study examined all the accidents that occurred in Juba collected from the State Directorate of Traffic Police and Juba Teaching Hospital. Identifiers were removed to ensure confidentiality.

## Results

From a total of 3,214 RTAs cases identified, 1,725 drivers involved in RTAs including 72 fatalities were analyzed after data cleaning. Fatalities were assessed through death certificates from medical records. Table 1 shows the distribution of drivers by type of vehicle and driver's condition.

Alcohol was not involved in 99.42% of cases. Of these the highest proportion (36.58%) of RTAs was caused by drivers of private vehicles followed by motorcyclists (26.78%). Taxi drivers caused the lowest proportion of RTAs. Of the 10 (0.58%) drivers driving under the influence of alcohol (measured by a breathalyzer), seven (0.41%) were drivers of private vehicles.

The study found that the highest number of drivers was aged 21-30 years followed by those aged 11 – 20 years, with the least number among those aged above 50 years. The average age was 34.5 years.

The highest number of cases was recorded in August with 189 (11%) and the least in January with 94 (5%) cases (Figure 1).

In the study males were by far the greatest number (99%) of cases than females.

RTAs occurred most often on city roads (89.83%) compared with 10.17% on highways.

## Discussion

Our results appear to suggest that RTAs in Juba are caused by other factors than the influence of alcohol on drivers. In the vast majority of cases (99.5%) the drivers were not under the influence of alcohol. The drivers of private vehicles had the highest number of accidents. Motorcyclists accounted for a quarter of RTAs in our study - the second highest number compared to private cars. In a similar study in Kampala, Uganda, the highest number of RTAs was caused by motor cyclists [7]. Another study conducted in Rwanda found that motorcycles accounted for about 14.5% of all RTAs [8]. The reason for this could be due to the poor training and easy access to the use of cars and motor cycles by individuals who might not have a driving license. Few government vehicles (1%) were involved in RTAs; this could be explained by the restricted movement of government vehicles at specific times during the day, and the requirement for a driving license before drivers were employed.

Age appears to affect the incident of RTAs. The highest number of RTAs was among drivers aged 21-30 years (46.2%). This agrees to a similar finding in South India [9,10]. The age group of drivers with the highest number of RTAs in Dar-es-Salaam, Tanzania was 15-44 years [11], and in Kampala, Uganda was 21-30 years [12]. These findings suggest that people of working age are most likely to be involved in RTAs, resulting in serious economic loss to the community.

The highest number of RTAs was observed in August (11%). In this month there is more frequent rainfall which is known to compromise road safety. The lowest

number was reported in January, likely due to the dry season and reduction of the population immediately after the December 2013 crisis. After the eruption of fighting in December 2013, many people left Juba. This impacted the number of vehicles on Juba city roads. Further study is required on the impact of season in relation to RTA. Most accidents occurred on city roads compared to highways or roads outside of the city. In our study male drivers were involved in the highest number of RTAs (99%) compared to female drivers (1%), perhaps because there are simply more male than female drivers.

## Conclusion

This leads us to conclude that a comprehensive safety system is needed that are premised on the idea of community-based awareness of traffic rules and safety regulations. Resources are limited so there is a need to harness local resources including the local community. It is recommended that more efforts are needed to improve road safety education among the youth/integrate safety into road design.

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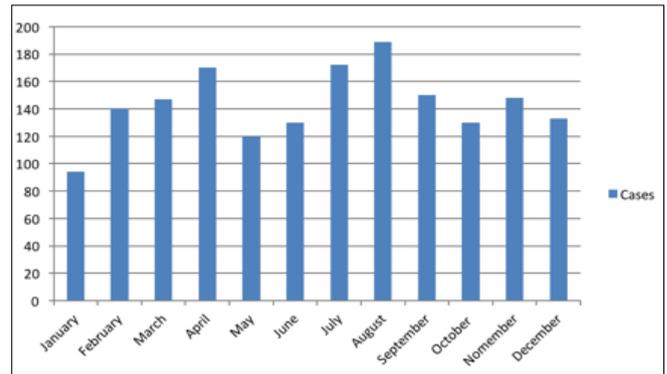


Figure 1. Number of RTAs per month

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