

Full Length Research Paper

Epidemiological profile of road traffic accidents victims received at the emergency reception service of the Regional Hospital of Kindia, Guinea, 2012-2016

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Road traffic accidents are frequent in Kindia. Information from police records is insufficient, hospital data are available but not thoroughly analyzed and previous studies are incomplete. We decided to supplement these previous studies with an in-depth analysis of the available data in order to guide appropriate actions. We conducted a cross-sectional study. We used survey of data from 2012 to 2016. We collected socio-demographic, clinical information and the circumstances of the accident through a documentary review. We analyzed the data using Excel 2010 and Epi Info 7.2. Proportions and median were calculated. The prevalence of road traffic accidents was 3.31%. The 15-30 age group was most commonly affected (46.98%) with a median of 24 years. Men were the majority (66.23%) and informal employees represented 51.68%. These accidents victims came from the urban area (77.58%). Accidents occurred generally between 8 a.m. and 4 p.m. (42.63). Motorcycles were mostly used (65.52%), main lesions were bruises (47.3%) largely in the lower limbs (38.3%). Lethality was 1.65%. Young adults were the most exposed and the informal sector remained the most widespread. Accidents occurred between 8 a.m. and 4 p.m. Preventive actions should focus on these exposures.

Key words: Epidemiology, casualties, public road, Kindia, 2012-2016.

INTRODUCTION

Nowadays, Road Traffic Accidents (RTA) are a real global scourge because of the high number of victims and is partly due to the modernization of the economic

sector, but also and above all because of poorly-maintained roads and human behaviors (Claret et al., 2007). A road traffic accident, whether it results in a fatal

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Table 1. Distribution of road accidents according to socio-demographic characteristics, Kindia regional hospital, Guinea, 2012 – 2016.

Socio-demographic characteristics		Number of accident victims (%)
Age range (year)	<15	1465 (16.53)
	15 - 30	4155 (46.98)
	31 - 45	1785 (20.14)
	46 - 65	912 (10.29)
	>65	547 (6.17)
Sex [n = 8860]	Male	5871 (66.26)
	Female	2989 (33.74)
Occupations [n = 8847]	Informal private employment	3260 (51.68)
	students	2623 (29.65)
	Official	712 (8.05)
Usual residences [n = 8859]	Other	2252 (25.45)
	Kindia region	7305 (82.46)
Kindia region residence [n = 7305]	Outside the Kindia region	1554 (17.54)
	Urban community	5667 (77.58)
	Rural commune	1638 (22.42)

trauma or not, comes from a collision on the public road with at least one moving vehicle. Injuries due to road traffic accidents are the 8th leading cause of death in the world and the leading cause of death among young people aged 15 to 29 (WHO, 2015). The World Health Organization reveals that Africa has had the highest death rate from road accidents at 26.6 per 100,000 inhabitants compared to an average of 18.2 per 100,000 inhabitants worldwide (WHO, 2015).

In Guinea, the Kindia region, due to its geographical position, constitutes a crossroads of national roads from Conakry to other administrative regions. It also links Guinea to the Republic of Mali, Sierra Leone, Côte d'Ivoire, Guinea Bissau, Senegal and Liberia. Its geography is made up of coastal plains bordered by a mountain range.

Previous studies carried out in Guinea by Beavogui et al. (2012) and Mamady et al. (2014) were limited respectively to cranio-cephalic trauma and mortality caused by road accidents. Police records were insufficient to conduct an epidemiological study followed by an intervention. Hospital data were available and took into account several epidemiological aspects, but have not been analyzed in depth. Hence, the present study was done to alert health authorities to the extent and issues related to road traffic accidents in Guinea in order to guide appropriate preventive actions.

MATERIALS AND METHODS

We carried out a cross-sectional study of 8,864 road accident

victims listed in the consultation and hospitalization registers of the emergency reception service of the Kindia regional hospital from 2012 to 2016. The information collected focused on socio-demographic and clinical data, date and place of the accident, means of transportation, circumstances and time of occurrence of the accident through a documentary review. A univariate analysis with Epi Info 7.2 was performed to calculate the proportions with their confidence interval and the median from a database developed, cleaned with Microsoft Office Excel 2010 software.

RESULTS

The most common affected age group was the 15-30 years (46.98%) with a median of 24 years and extremes of 2 months and 99 years. The majority of accident victims were men (66.26%) [95% CI = 65.24 - 67.22]. Employees in the informal private sector represented a proportion of (51.68%) followed by students (29.6%). These accident victims came primarily from urban areas (77.6%) (Table 1). The monthly number of cases varied from 26 to 324 road accidents (Figure 1).

In relation to the circumstances of the occurrence, the accidents occurred during the day in the majority of cases between 8 a.m. and 4 p.m. (42.63%). The majority of accidents had motorcycles involved (65.50%) (Table 2). The main lesions were contusions (47.3%) mainly in the lower limbs (38.3%) (Table 3). Lethality was 1.65%.

DISCUSSION

The median age of accident victims in our study was 24

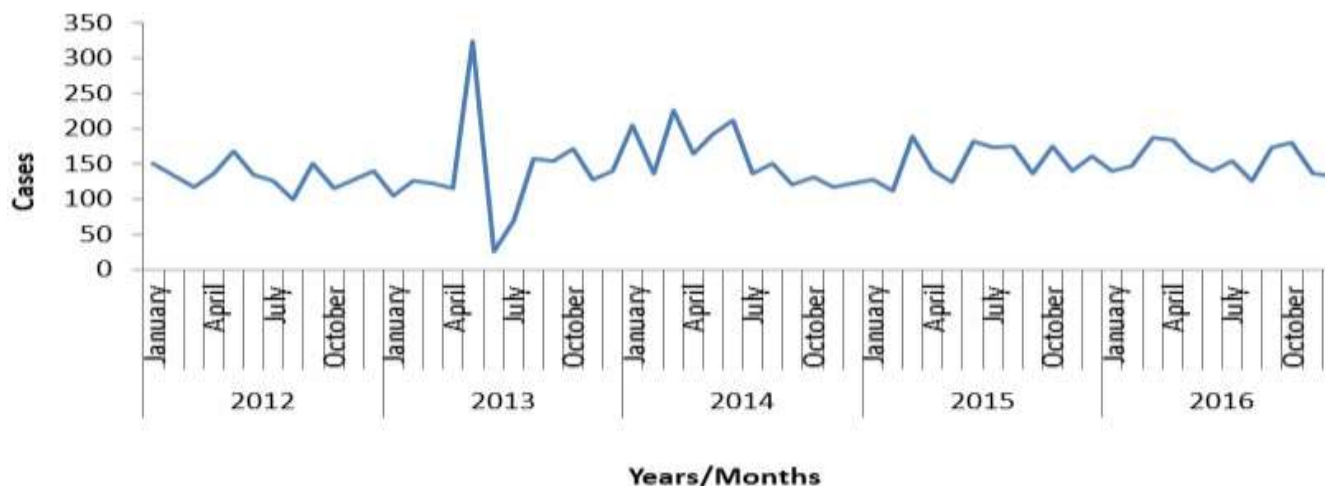


Figure 1. Monthly trend in the number of road traffic accident cases, Kindia regional hospital, Guinea, 2012 - 2016.

Table 2. Distribution of road accident cases according to the circumstances of occurrence, Kindia regional hospital, Guinea, 2012 – 2016.

Circumstances of occurrence		Number of accident victims (%)
Time of occurrence [n = 8800]	06 - 08	165 (1.88)
	08 - 16	3751 (42.63)
	16 - 20	2422 (27.52)
	20 - 24	1662 (18.89)
	24 - 06	800 (9.09)
Type of travel [n = 8861]	Motorcycle	5806 (65.50)
	Automotive	3024 (34.12)
	Bicycle	27 (0.30)
	Pedestrian	4 (0.04)
Accident locations	Urban community	5671 (63.98)
	Rural Communes	1239 (13.98)
	Outside the Kindia prefecture	1954 (22.04)

years with extremes of 2 months and 99 years. The most common age group was 15-30 years followed by 31-45 years. These results are comparable to those of a beninese author (Kpozèhouen et al., 2016), who found that 75% of RTA concerned the 15-44 age group. This high frequency in young adults could be explained both by the hyperactivity of this population, which generally has two-wheeled vehicles, are inexperienced, and takes high risk while driving.

Men were mostly affected in this study (66.3%) with a sex ratio of 1.96. This predominance corroborates the studies by McGreevy et al. (2014) and Etehad et al. (2015) who found 73 and 74.7% respectively. The high prevalence of ATR in men is linked to the daily activities they perform to support their families by frequently using motorized transportation. Employees of the informal private

sector (merchants, housekeepers, servants, and employees of telephone companies) were mainly affected in this study with a frequency of 51.7% followed by students (29.6%). This category of population, not knowing the highway code and using motorized transport more frequently, were most often victims of accidents.

Our results are in line with those obtained in the study of Abhé in the emergency department of Cocody CHU in July 2014 (Abhé and Tétchi, 2014). The period from March to June had the highest frequency of RTA with a maximum of cases observed in May, 2013. This results are different from those reported by Huang in Nepal who found that accidents were frequent in November and July. On the other hand, in our study, accidents frequently occur between March and June. This period corresponds to the dry season which is favorable to the

Table 3. Distribution of road traffic accident cases according to the type and site of the lesions, Kindia regional hospital, Guinea, 2012 - 2016.

Type and site of lesions		Number of accident victims (%)
Types of lesions	Contusion	4195 (47.33)
	Head trauma	3008 (33.94)
	Scratch	1299 (14.65)
	Closed fracture	209 (2.36)
	Open fracture	86 (0.97)
	Poly trauma	54 (0.61)
	Burn	4 (0.05)
	Dislocation	9 (0.10)
Site of lesions	Feet	3398 (38.33)
	Head	3084 (34.79)
	Upper limb	1363 (15.38)
	Trunk	1019 (11.50)

great displacement of the human population but also of the cattle which are responsible for domestic accidents.

Most of the accidents occurred during the day from 8 am to 4 pm 42.63%, followed by evening from 4 pm to 8 pm (27.52%). Studies carried out by Santos found that the occurrence of RTA were usually at night with a frequency of 53.3% (Santos et al., 2008). Also, studies of Hamzeh noticed the frequent occurrence of collisions between 1 pm and 3 pm and isolated accidents between 4 pm and 6 pm (Hamzeh et al., 2016).

The occurrence of accidents during the day between 8 am and 4 pm could be linked to the increase of the daily activities of the population. However, the reduction in visibility and the return of the population to their homes with the degraded state of urban roads are the causes of accidents that occur in the evening between 4 p.m. and 8 p.m.

Motorcycles were the most common mean of transportation found in this study (65.5%), followed by automobiles (34.1%). These results are comparable to those reported by Kpozèhouen et al. (2016); Madubueze et al. (2011); Osifo et al. (2012) and Yunus et al. (2015) who respectively found 74, 54, 53.1 and 73% for motorcycles. However, these results differ from the study carried out by Etehad between April 2011 and March, 2012 (Etehad et al., 2015), which found pedestrians (40.5%) as the main mode of travel affected in RTA.

Differences in results in these studies were related to the standard of living of the population and the nature of the trails to be practiced. Motorcycles were the usual means of transport of the population of the urban area of Kindia. Motorcycles were also often used for commercial purposes.

Contusions were the most observed lesions in accident victims, 47.3% of lesions encountered followed by head trauma (33.9%). The studies carried out by Kpozèhouen

at the National Hospital and University Center of Cotonou in Benin and Santos showed respectively 74 and 69.3% of contused lesions (Kpozèhouen et al., 2016; Santos et al., 2008). The predominance of bruised injuries is linked to the most frequently used means of transport (motorcycles) and to the light nature of the shocks during motorcycle accidents.

A total of 146 deaths were recorded during the period 2012 to 2016, of which 51 occurred at the accident site and 95 cases in hospital. The fatality due to RTA was 1.6%. These results are similar to those reported by Almeida in northeastern Brazil from January 2004 to December 2008 (Almeida et al., 2013) which found a lethality of 1.4%. However, they are lower compared to those obtained by Sherafati in Iran, in a study of 1520 patients admitted to hospital for road traffic accidents for a period of 1 year (3.9%). In this study, 54.8% of RTA occurred in rural areas with higher admission time effects responsible for a gap in access to health care services between urban and rural areas (Sherafati et al., 2017).

Conclusion

Young adult males were most often at risk of ATR, the majority are those employed in the informal sector who use motorized transport more frequently. Accidents often happen between 8 a.m. and 4 p.m. and mainly in urban areas. Raise public awareness of the dangerousness and extent of road accidents, strengthen road safety, regulate the driving of motorcycles through specific training and information documents on the highway code (training program for young people adults to ride motorcycles) by requiring the issuance of a motorcycle license and the establishment of a national traffic accident surveillance system could reduce the incidence of traffic accidents.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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