

ROAD ACCIDENTS IN URBAN AND RURAL AREAS - A CASE STUDY OF MOTORCYCLE ACCIDENTS IN DAR ES SALAAM, TANZANIA

B KINYAGA, MILT

The Chartered Institute of Logistics and Transport-Tanzania
P.O. Box 78655, Dar es Salaam, Tel: +255 718937070
Email: brunokinyaga@gmail.com

ABSTRACT

Motorcycles transport commonly known as (Boda boda) in Tanzania has been growing up in the recent years in both urban and rural areas. Since motorcycles have been authorized to carry passengers in Tanzania they have been associated with many accidents resulting in large number of deaths and injuries in the country. Most of the road traffic injury victims are passengers, motorcyclists and pedestrians. Males are over represented in all cases. Most of the deceased were 18-29 years old.

The increase of motorcycles has been accompanied with the increase of motorcycle crashes causing deaths and injuries to passengers as well as riders. According to the data collected, the statistics shows that from January to December 2015, the total number of 4079 motorcycles was involved in accidents in the country, causing 1747 deaths and 4826 injuries. Compares to the report of January to December 2014 whereby the total number of motorcycles involved in accidents were 3710, causing 1423 deaths and 3622 injuries. This is according to the report provided by the Road Safety Chief Commander in Tanzania, Commissioner (DCP) Mohamed Mpinga.

1. INTRODUCTION

Road traffic injuries claim more than 1.2 million lives each year and have a huge impact on health and development (Mcharo, 2012). They are the leading cause of death among young people aged between 15 and 29 years, and cost governments approximately 3% of GDP in developing countries. Despite this massive – and largely preventable – human and economic toll, action to combat this global challenge has been insufficient. The third global status report on road safety shows that low and middle-income countries are hardest hit, with double the fatality rates of high-income countries and 90% of global road traffic deaths. Vulnerable road users – pedestrians, cyclists and motorcyclists – make up half of these fatalities, (WHO Global Status on Road Safety, 2015 Report).

Motorcycles transport commonly known as (Boda boda) in Tanzania has been growing in recent years in both urban and rural areas. This means of transport is used by many people in the country due to the facts that it is the fastest means of transport to any destination. Up to June 2014 the number of motorcycles that had been registered in the country was about 1.2 million. Currently, the number has gone up to about 1.5 (Lateef F, 2002).

1.1 Study objectives

The major social-economic benefit and objective of this study relates to unravelling the main causes for motorcycle crashes in Tanzania and generating countermeasures with a view not only to reducing and measures the number of accidents in both urban and rural areas, but also to improve the level of service associated with motorcycle transport.

1.2 Literature review

In this study it has been found that, the majority of motorcycle crashes (80%) had been crashes on commercial motorcycles. Likewise in Uganda and Nigeria the study found a large proportion of motorcycle crashes to occur on commercial motorcycles. This activity is an area of important socio-economic development that requires proper measures to prevent accidents resulting from motorcycles crashes (Direr, 2014).

Most of the motorcycle crashes were reported to occur during day time with peak occurrence in the afternoon, similar to what has been reported elsewhere. In Dar es Salaam traffic is very busy early in the morning, during lunch and evening time. The reason being residents are moving to and from work and at the same time students are also rushing to and from school.

Most of the motorcycle crashes (85%) occurred on tarmac roads, similar to other studies (Mcharo, 2012). The motorcycle crashes on the tarmac roads are probably because of higher traffic density as the paved/tarmac roads are the main thoroughfare for the city. The smoothness of the road may make riders ride with less caution. It is also possible that, the straight roads allow riders to attain a higher speed with a resultant higher tendency to crash in cases of potential conflict.

The issues impacting on road safety in most developing countries are:

- Lack of strong enforcement of road traffic laws and regulations.
- Speed management, which lies at the heart of an effective approach to reducing deaths and injuries, is notably poor in many countries.
- Lack of road safety education to road users.
- Fake licenses “A lot of fake licenses”
- Corruption.
- Lack of education for operators.
- Roads are not perceived as dangerous.

- Lack of accident registration (data collection and management).
- Roads continue to be designed and built without sufficient attention to the needs of the most vulnerable road users.

2. STUDY AREA

The study was conducted in the Dar es Salaam region of Tanzania, where a large number of people is using this mode of transport. The population of Dar es Salaam is 4,364,541 per the official 2012 census, increasing at 5.6 percent per annum from 2002 to 2012. The study was conducted in three representative districts (Kinondoni, Ilala and Temeke) within the Dar es Salaam region (Table 1). The selected districts are well known for the use of motorcycles transport services. Many respondents involved in the study areas are those who engaged in providing the service (motorcyclists) and the users of the service (passengers) (Nantulya, 2002).

2.1 Country Profile

Tanzania is an East African country about 5° south of the Equator with a population of about 45 million in 2012 (National Bureau of Statistics, March 2013). Tanzania is a relatively large country located in East Africa with a total area of 945,087 square kilometres. Tanzania has 30 administrative regions as well as about 128 districts (Figure 1).



Figure1. Map of Tanzania

Table1. Study area

District	Population (2012)	Area km ²
Ilala	1,220,611	210
Kinondoni	1,775,049	527

Temeke	1,368,881	656
Total	4,364,541	1,393

3. METHODOLOGY

The study used both qualitative and quantitative methods of research by conducting physical surveying on sample districts. A cross-section descriptive study was conducted from June to September 2014 whereby targeted informants were interviewed using structured questionnaires. The data obtained was entered into the Statistical Package for Social Studies (SPSS) program (version 15) for cleaning, coding and statistical analysis.

The study covered 289 people obtained through sampling techniques, calculated by using a single population proportion formula, as below:

Formula

$$N = Z^2 p (1-p) / E^2$$

whereby

N = is the minimum sample size required

Z= 1.96 at 95% confidence interval

E = is a margin of sampling error rate 5%

P = Proportion of motorcycle crash accidents victims (25%)

Substituting these values to the equation above; $N = 1.96^2 * 0.25(0.75) / (0.05)^2$; **N= 289**

4. FINDINGS

The study findings are as follows:

- Most of the crashes occurred between motorcycles and motor vehicles (70-80%) were compared to other studies (50-55%) (Nantulya, 2002).
- Crashes between motorcycles are 10%, compared to other studies (7%).
- Motorcycles and pedestrian (5%) compared to other studies (10%).
- Single motorcycle crashes (5%) compared to other studies (11%).
- Motorcycles and bicycles (5%) compared to other studies (3%) (Nantulya, 2002).

Table 2. Motorcycle accidents that occurred in Tanzania from January 2015 to December 2015, compared with accidents that occurred from January 2014 to December 2014.

Year	No. Accidents	No. Deaths	No. Injuries
2015	4079	1747	4826
2014	3170	1423	3622

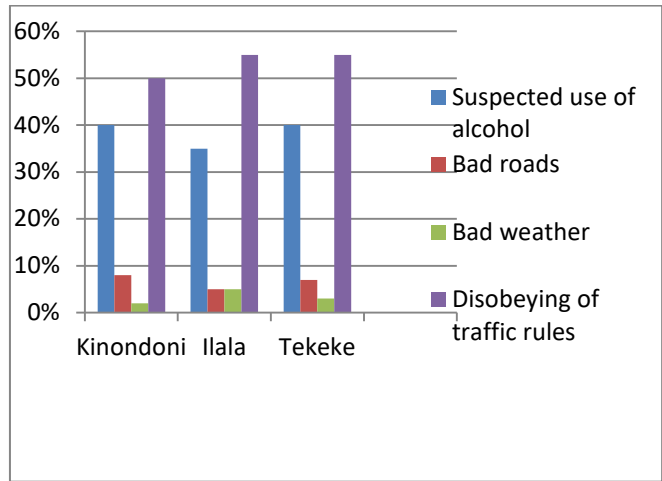


Figure 2. Contribution factors to motorcycle accidents.

Figure 2 shows that, most of motorcycle accidents are being caused by the tendency of disobeying of traffic rules (50%-55%), followed by the tendency using alcohol (35%-40%).



Figure 3. Accident caused by the behaviour of carrying overloaded luggage.

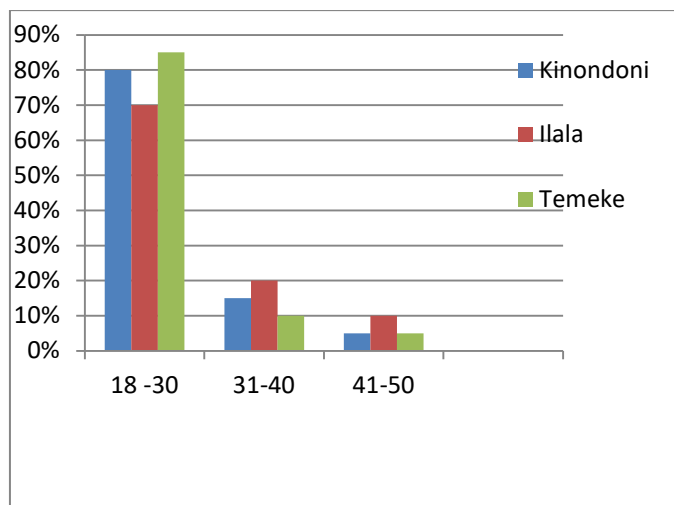


Figure 4. Age group of motorcyclist's v/s the percentage of accidents associated.

Figure 4 shows that most of (18-30 age group) are being engaged in motorcycle transport service provisions as motorcyclist (70%-85%).



Figure 5. Motorcyclist behaviour of carrying more than one passenger and without helmets

Table 3. Motorcyclists riding with license/without license

	Kinondoni %	Ilala %	Temeke %
With License	60	70	50
Without License	40	30	50

Most (more than 50%) of motorcyclists have licenses, while (20 – 49%) are non-licensed riders. This indicates that, most of the accidents occurring especially in urban areas, are being caused by informal trained motorcyclists. It also indicates that there are no frequent inspections on license to motorcyclists, mostly in Tegeta and Kigamboni.



Figure 6: Motorcycle and motor vehicle crash

5. CONCLUSION

Motorcycles accidents is one of the most high risks are of road transport in Dar es Salaam and other urban areas in the country and account for many deaths and injuries leading to disabilities, resulting in the major public health burden and increase in number of dependency in the country (Kemptson et al, 2012).

Many youths who were jobless, are now being self-employed and others being employed as motorcyclists. This activity is helping them to afford their daily needs and others care for their family through this activity.

A large proportion of riders do not possess a riding license and most of them are being suspected on the use of alcohol during riding. There is also a low helmet wearing tendency. Motorcycle/motor vehicle collisions are the most common type of crashes, accounting for the majority of motorcycle accidents reported.

Road traffic injuries and deaths also place a heavy burden on national economies as well as on households. In low and middle income countries, particularly the economically active age group is affected, or those set to contribute to family, society and the workforce in general (Lema, 2007). Unfortunately, road safety is not taken as a serious issue. Probably other problems are seen to be more urgent or important, but when analysing the cost related to the victims, as well as serious injured people that cannot work anymore or may be depending on the government due to the consequences of the accidents, the road safety topic becomes more important than originally thought (Barber et al, 2014).

6. RECOMMENDATIONS

Recommendations emanating from the study are as follows:

- Strictly enforcement of road traffic laws that instruct the riders to attend pre-riding courses and to make assurance that they have been tested by traffic police before possessing a riding license.

- There should be a specific government organ that will be responsible on controlling road safety. And the process of possessing driving license should be more strictly by copying on the licensing policy on motorcyclists from developed countries.
- Conducting several checks on alcohol use to motorcyclists during riding.
- Initiate road safety education to road users.

7. ACKNOWLEDGEMENT

This Study is part of the Chartered Institute of Logistics and Transport International Young Achiever Award of the Year 2014 and the Henry Supprier Award of 2015. Two international recognition awards were awarded to the author by the Chartered Institute of Logistics and Transport International for his contribution on road safety initiatives and the logistics and transport sector at large.

The author wants to thank all persons, institutions, and organizations who assisted in one way or another in every process of this study, including

- The Chartered Institute of Logistics and Transport (CILT)- International
- The Chartered Institute of Logistics and Transport (CILT)- Tanzania
- Transaid
- Surface and Marine Transport Regulatory Authority -Tanzania
- Tanzania Police Force.

8 REFERENCES

Barber C. Brader H. Mgonjas E. Turner J. (January 2014). An investigation into the role of transport operator associations in shaping Transport Services in Africa's rural areas: Transaid, Tanzania.

Direr M. (August 2014). The impact of employment and working practices on road safety (Case study: Tanzania).

Kempton G. Mbathi M. Njenga P. Odero K. Starkey P. Willilo S. (September 2012) urban transport service indicators: Tanzania Country Report.

Lateef F. (2002). Riding motorcycles: is it a lower limb hazard?

Lema C. (May 2007). Makete Integrated Rural Transport project, Dar es Salaam Tanzania.

Mcharo M. (2012). Motorcycle crash: injuries patterns and associated factors among patients treated at Muhimbili Orthopedic Institute (MOI).

Nantulya V. M. (2002). The neglected epidemic: road traffic injuries in developing countries. *BMJ* 2002; 324:1139-41.

WHO (2015). Global Status on Road Safety, 2015 Report.