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Road traffic injuries in Mozambique

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Abstract

Road traffic injuries affect the economy, health and quality of life of the people of Mozambique. Current road safety programmes are inadequate and inefficient given the magnitude of the problem. Data reported on road traffic crashes in the period 1990 to 2000 from the National Institute for Road Safety, the traffic police and the Central Hospital of Maputo were reviewed. The burden of road traffic injuries in Mozambique is rising, with at least three people killed daily. The age group most affected is 25–38 (39.35%), followed by 16–24 (20.79%). The main causes of crashes include reckless driving, drunken driving, roads with potholes, inadequate signs, lack of protection for pedestrians, and inadequate traffic law enforcement. However, the data are not adequate to reveal the true magnitude of the problem. Data collected by different sources are incomplete and not coordinated with other sources and databases. In urban areas, however, better response to crashes, treatment of the injured, reporting and data collection is attributable to a greater concentration of police and medical facilities. Road traffic safety programmes in Mozambique are inadequate and inefficient, starting with the data collection system. Improvement of injury surveillance systems is needed to help make road traffic safety a national development agenda priority and for developing and implementing road safety policies. For road safety programmes to be effective, government must facilitate stakeholders’ involvement, and the clear definition of government activities, civil society activities and public-private partnerships need to be established.

Keywords: road; traffic; injuries; Mozambique.

Introduction

Mozambique, like other developing countries, is experiencing a rapid increase in motorization without having adequate road traffic safety mechanisms in place to control the growing number of road traffic crashes and injuries. As reported for other low-and-middle income countries, the main victims are pedestrians, cyclists and public transport passengers1,2. Countrywide, an average of three people are reported to be killed each day due to road traffic injuries. (Unpublished reports, Instituto National de Viação, 1998–2001, Maputo: Government of Mozambique.)

This paper presents the road traffic injury (RTI) problem in Mozambique, its magnitude, the actions taken to address it and the constraints faced. According to the data from INAV (Instituto National de Viação, National Institute for Road Safety), 928 people died in 5194 crashes in 1998; in 1999, 899 people died in 5168 crashes; and in 2000, 906 deaths were recorded, resulting from 4532 crashes. In those same years, Mozambique had 5393, 5711 and 5061 injured people, respectively. (Unpublished data, INAV, 1998–2001, Maputo: Government of Mozambique.)

These data inadequately portray the magnitude of the problem, since the countryside is hardly covered by the traffic police, except for its major roads and highways. Furthermore, minor or non–life threatening injuries are more likely to be excluded from road traffic injury statistics because the victims do not usually seek medical attention at the hospitals. Generally speaking, the Mozambican statistical data collection system does not ensure satisfactory accuracy.

The purpose of this study is to show Mozambique’s current situation with regard to its road traffic injuries (RTIs)
problem, the resources available to address the problem and what is being done towards solving the problem.

**Materials and methods**

**Sources of data**

The major sources of Mozambican road traffic crash data are the traffic police, the Ministry of Health, the INAV and the Central Hospital of Maputo. The INAV is responsible for road traffic management and collects data on the crash sites as well as receiving data from the traffic police in order to analyze and design intervention plans. The Ministry of Health compiles statistical data from all its health units monthly. The data represented here do not encompass the entire country, but mainly urban areas, such as the capital city, Maputo.

Traffic police data date back to 1975, the year Mozambique attained its independence. Data from INAV, which exists since 1993, covers the period between 1994 and 2000. Data collection on road traffic injuries at the Central Hospital of Maputo covers the period 2000 through 2001, in a period equivalent to one year.

Whenever a crash occurs, the traffic police record the type of vehicle or vehicles involved, the crash victims classified by age, sex and by road-user, type and extent of injury, and the material damages caused by the crash. The Central Hospital of Maputo collects data on crash victims, defining clearly the type of injury, the extent as fatal, severe, moderate and/or mild/minor, and the sex and age of the victims. Cases of disabilities resulting from vehicle crashes can be obtained at the hospital. Of course, there are many crashes which are not reported to the Central Hospital of Maputo.

Despite many gaps and limitations in the data, these three data sources provide some insights into the magnitude and nature of crashes and traffic-related injuries in Mozambique. Analysis of data is carried out by the INAV in order to determine factors and the type of victims and damages. Accordingly, measures are proposed by the National Technical Advisory Board on Road Safety to control these factors.

With regards to data collection, the police are the major data collecting body for road traffic crashes. If there are human victims of a road traffic crash, the hospital is responsible for defining what type of injury was sustained.

Since the police are unable to report all cases of road traffic crashes, crash victims usually go to the hospitals without police intervention. The hospitals gather the information but do not pass it on to the traffic police, which results in underreporting.

**Results**

**Magnitude and trend of road traffic injuries**

Although road traffic crashes have reached a critical point in Mozambique, underreporting leads to an inaccurate picture of the RTI situation. It is generally known that, particularly in the last 10 years, people everywhere in the country have become more mobile and that motorization has increased about two-fold following the cessation of the civil war in 1992. These apparent realities of the current situation, however, are not apparent in the data as the systems of data collection are inadequate. Instead, data in Mozambique contain many discrepancies and inconsistencies. The worst aspect of the available data is lack of direct correlation where one should and does empirically exist. For example, data from the INAV shows a sharp decline in road traffic crashes and injuries from 1995–2000, whereas during the same period, the number of traffic crash fatalities stabilized (Fig. 1). Given this lack of correlation and a rising motorization, these data appear incomplete.

![Figure 1. Trends in road traffic crashes, injuries and fatalities in Mozambique, 1975–2000.](source: INAV archives)
Mozambique has experienced a rapid increase in road traffic crashes, particularly over the past 10 years, as populations became more mobile. The motorization index (number of vehicles per 1000 population) rose from 3.4 in 1990 to 7.6 in 2000. Maputo City, with the status of a province, was the site of 42% of all reported road traffic crashes and 20% of all reported deaths due to road traffic injuries. (Unpublished data, INA V, 1998–2001, Maputo: Government of Mozambique.)

The EN1 (the road linking Maputo to the two central cities of Beira and Chimoio) ranked highest among the dangerous roads, with 357 crashes and 145 deaths in 2000, while EN6 (the road linking Beira and Chimoio) ranked as the second most dangerous, with 262 crashes and 86 deaths in the same year. The EN2 (linking Maputo to South African towns just across Ressano Garcia Border Post) ranked third, with 102 crashes and 55 deaths. All other national highways accounted for 50 crashes and 10 deaths in the same year. (Unpublished data, INA V, 1998–2001, Maputo: Government of Mozambique.)

Crashes involving a pedestrian hit or run over by a motor vehicle are the most frequent form of crash, followed by collisions between vehicles. From 1993 to 2000, incidents where pedestrians were hit or run over by vehicles made up 47% of all recorded road traffic crashes, followed by collisions between vehicles with 30.6%. Moreover, pedestrians hit or run over by vehicles accounted for up to 55% of all deaths resulting from road traffic injuries. (Unpublished data, INA V, 1998–2001, Maputo: Government of Mozambique.)

Recorded causes of traffic crashes

A study conducted by INA V in 2000 concluded that reckless driving, drunken driving, roads poorly maintained with potholes, inadequate signs, lack of protection for pedestrians, and inadequate traffic law enforcement were the main causes of crashes.

Reckless driving is defined as breaking the code of rules in Mozambique. Drivers in Mozambique frequently break the Highway Code, especially with regard to traffic signs and lights. Drivers can frequently be observed crossing an intersection when the traffic lights are red. In 1999, the police reported 29,747 such infractions in Maputo alone, where there are about 60,000 vehicles. Indeed, one out of every three drivers in Maputo broke the Code at least once. Passenger-ferrying vehicles such as buses and trucks lead in breaking the Code. This comes with a high cost, since the involvement of one such vehicle in a crash often leads to many deaths due to the large numbers of passengers aboard. (Unpublished data and observations, Traffic Police, Mozambique, 1999).

Health outcomes

Concurrent with the trend in crashes, the number of injuries and deaths due to road traffic crashes has increased, particularly over the last 15 years (Fig. 1). In 2000, 906 deaths, 2738 severe injuries and 2323 light injuries were recorded, resulting from 4532 crashes. The highest number of deaths occurred in ages ranging from 25 to 38 years, followed by those between 16 and 24 years, and then by children and teenagers between 5 and 15 years (Fig. 2). Deaths among children are mainly a result of being run over, either playing or on their way to or from school. The data are not yet analysed by sex.

Data from the Central Hospital in Maputo have shown that road traffic injuries are the main cause of death due to trauma. In the year 2000, road traffic injuries accounted for 43% of the approximately 15 thousand deaths due to violence. Data from August 2000 to August 2001 show that among trauma victims, those suffering from road traffic injuries were second to falls among people seeking emergency services at the hospital. Seventy percent of the injured were male and 30% were female; 54% were pedestrians, 40% passengers and 6% drivers. The main parts of the body affected were head (38%), arms (22%), and lower limbs (21%). Three percent of these surviving victims were considered severely injured and 56% sustained minor injuries, while 41% had sustained moderate injuries. (Unpublished data, Central Maputo Hospital, August 2000–2001.)

Health and economic statistics on RTI

The economic costs of road traffic injuries are mainly borne by the state, insurance companies and the families of the victims. SWEROAD’s (Consultancy Services for a Strategy and Program for the Improvement on Road Safety) final report, published in 1996, estimates that in developing countries the overall national cost of road traffic crashes and injuries is between 1.5% and 2.5% of the GNP. These esti-
mates include material damages, health care costs and production losses. The economic costs to the Mozambique economy resulting from traffic crashes, deaths and injuries have not yet been sufficiently analyzed.

Road traffic injuries constitute a major public health problem that impairs development, reduces the quality of life and increases the costs of health care. Unfortunately, only recently, in 2000, have the health authorities started paying attention to the problem, with the support of the WHO. The Central Hospital of Maputo is the only institution that has collected accurate data, following the WHO standard methods of data collection on traffic-related trauma. In the other health care centres, the final diagnosis is detailed to the lesion sustained, and the real scope and impact of road traffic trauma is lost in the process. The Central Hospital of Maputo, which was funded by WHO to carry out a research pilot project, has developed data collection instruments meeting the requirements of standard statistical information, ranging from type of injury, sex, age, the magnitude of economic damages, etc. But one hospital alone cannot lead to overall accurate data for the country. As a result, there is no analysis of the consequences of crashes for the health budget. The Central Hospital of Maputo is planning to study the costs of treatment of those injured in the near future.

Discussion

In Mozambique, road traffic injuries are a cause of morbidity and mortality that affects the national economy. Available data indicate that since 1990, an average of 4595 road traffic crashes have been recorded annually. The number of crashes increased from 1849 in 1985 – the country’s lowest in the last 25 years – to 5341 in 1995 – the worst year that has been recorded. One of the exogenous factors that contributed to this large number of crashes was the presence of the UN Intervention Forces in the period around 1994. In 2000, the number of crashes fell to 4532, a figure similar to the levels recorded in 1975. (Unpublished reports, INAV Archives, Maputo: Government of Mozambique.)

The available data suggest that crashes in Maputo City are less fatal than those in provinces other than Maputo Province. (Maputo Province is different from Maputo City but they both have the same status). This may be the result of lower vehicle speed within the city combined with a better and quicker treatment of the injured, as Maputo is well served with health care centres. Another reason for relatively less fatal crashes in Maputo is that city roads are used mainly by small private cars with fewer passengers, while intercity travel on roads traversing the rural areas is carried out mainly by passenger-ferrying buses. High rates of fatalities are associated with crashes involving passenger-ferrying buses. In 1999, the average number of deaths per bus crash was 6.07 compared to the overall average of 0.174 deaths per crash for all vehicles, while in 2000 the average number of deaths per crash was 12.1 against an overall average number of 0.20 deaths per crash. From January 1999 to March 2001, crashes involving buses constituted 19.4% of the total recorded and accounted for 24.6% of people with minor injuries, 33.3% of those with severe injuries and 37.7% of deaths. Yet the buses represent only 4% of the total number of vehicles. (Unpublished data, INAV, 1998–2001, Maputo: Government of Mozambique.)

Data collection faces significant constraints and imperfections related to incompleteness. Whereas the traffic police collect data on road traffic crashes and injuries from the provincial level down to the district, the traffic police operate mostly in cities and the districts’ major towns. This means that many crashes that occur outside these areas are not recorded, especially if the injuries sustained are not serious or severe because the injured do not present themselves to any hospital, nor do they go to the traffic police to file a complaint. The different institutions involved in data collection also do not have an executive body and so have not devised a way to share information and do not effectively work together. Even though there is now a multisector road safety council – a top level government body – it does not have contact with the road user or the data systems. Hospitals also collect data that they do not share with the traffic police, further exacerbating discrepancies in data kept by the two sources.

For example, the Central Hospital of Maputo alone attended to 7062 road traffic injury victims in 2000, while 5967 was the total number of victims recorded for the whole country in the same year (unpublished data, Central Maputo Hospital, 2000). This serves to underscore the fact that the road traffic injury problem is much larger than reported data may suggest. To resolve these discrepancies, the institutions involved should collaborate to redesign forms and processes for the collection and reporting of routine data, which could be entered into a central data bank for road traffic safety. A single body working with the traffic police, the hospitals, INAV and the civic society to coordinate data collection for crash sites and victims could considerably improve the quality of statistical data on road traffic injuries.

Some of the gaps and discrepancies among data sources are due to differing definitions – for example, definitions of injury and death, and the designation of severe and minor injuries by the traffic police without assistance from medical personnel. More uniform and scientific definitions ought to be agreed upon by the sectors involved. Medical personnel, the traffic police and INAV should join efforts and work together to avoid unshared data and other information.

The heaviest tolls in traffic-related trauma occur when crashes involve buses and other passenger-ferrying vehicles such as trucks. Public transport operators can participate actively in efforts to reduce road traffic crashes and injuries. The operators can identify ways to create job security and better working conditions conducive to reducing risk-taking for drivers. Lawmakers could also contribute to solutions – for example, through creating better working conditions for the drivers.
Law enforcement bodies could also do their part to mobilize the public to cooperate with the police in curbing road traffic crashes, clearly defining the nature of the cooperation required. The police are generally ill equipped and unable to prevent most of the reported violations of the Highway Code. The existing penal code entails heavy fines, but the law is not applied consistently. There is a chronic lack of evidence to convict and punish errant drivers.

Drunken driving, a major cause of road traffic crashes in Mozambique, is one such code violation that could be enforced better. Although documentation on drunken driving is not readily available, the authors have frequently heard people boast of how they can drive well when they are completely drunk. Furthermore, every one of us has seen minibus drivers hiding cans of beer in between their legs to keep on drinking as they drive. For more than 15 years there has been no enforcement of regulations concerning ‘drinking and driving.’ Only recently has INAV announced the reintroduction of alcohol control as an important prevention measure. Alcohol control policies are expected to be implemented in the near future.

Public awareness is also important for the successful implementation of a comprehensive road traffic crash reduction program. To that end, all stakeholders, such as schools, media, the private sector, the general public and civil society, including religious groups, can join hands in the fight against road traffic injuries.

One area where stakeholders could focus on to work with government would be the improvement of the roads and adjacent road space. The general condition of roads is poor, with potholes and all sorts of obstacles in the way. It is common to see animals on the rural roads, as well as children using them as playgrounds. In the urban setting there is a general misuse of the roads. Vehicles are often inadequately parked. In some places, sidewalks do not exist, forcing people to walk on the road. Root causes of the problem are the general lack of education about safe driving and walking, and the inadequate road infrastructure.

The major causes of road traffic crashes have not been well documented in Mozambique because of the inadequate data collection systems. Indeed, there are important variables to be controlled in any road traffic injury prevention program and many stakeholder groups to involve in the process.

References