

# Road Traffic Accidents in Tanzania: A Ten Year Epidemiological Appraisal

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A descriptive analysis of road traffic accidents data in Tanzania was done using routine police records. The trends, road users injured or killed and conservative factors were recorded. The results showed that between 1990 and 2000 the number of road traffic accidents rose by 44% from a total 10,107. At the same time the number of associated injuries increased by more than 44% and that of death by more than 64% during the same period. A total of 56% of the injured were passengers followed by pedestrian (25%) while the dead included passengers. Inappropriate road use behaviours by different road users were reported to be the major cause of accidents with driver's inappropriate behaviour contributing 52%.

It is suggested that police data collection be strengthened and also be linked to health data. Such data will then provide information on the type of intervention necessary for various stages before and after injury has occurred and will also show the true burden of injuries in the country. Introduction

Road traffic accidents are a major health problem worldwide. It is estimated that 3,000 people die and 30,000 are seriously injured on the world's roads every day with the majority of the casualties coming from what the World Bank classifies as low and middle-income countries<sup>1</sup>.

While for a long time road traffic accidents have been the leading cause of permanent disability and mortality among those aged 10 to 50 years in developed countries, the same picture is unfolding in developing countries as they undergo what has been termed the "epidemiology of transition"<sup>2</sup>. In many developing countries, not only is the incidence of various injuries increasing but also the causative factors are changing from the historical patterns such as falling from trees

to injuries due to occupational hazards, interpersonal violence and road traffic accidents, which appear to be the leading cause of traumatic injuries<sup>3</sup>.

Statistics from many developing countries ascertain to these changes. In Mexico for example, as deaths from infectious diseases declined from 43% to 17%, deaths from injuries rose from 4% to 11% of all deaths, with road traffic accidents contributing most of the deaths<sup>4</sup>. The situation in Africa shows a similar trend. Nigeria with one of the highest road traffic accident rates, recorded an increase of 43% in road traffic accidents with 110% increase in deaths rates, between 1977 and 1983. The corresponding population increase during the same period was only 2.7%<sup>5</sup>. Another study in Nigeria found that the proportions of death from road traffic accidents increased from 38.2% to 60.2% within ten years<sup>6</sup>. Similar trends have been reported from East Africa. Road traffic related fatalities in Kenya increased by 578% and non-fatal casualties by 506% between 1962 and 1992<sup>7</sup>. In Tanzania road traffic accidents accounted for 56% of all patients admitted to Muhimbili Medical Centre due to injuries<sup>8</sup>.

Despite the increasing trend suggested by available data, injuries in general and road traffic injuries in particular have not received the attention they deserve in most developing countries. Lack of empirical data and poor quality of the little that exist is probably part of the problem<sup>9</sup>. At the same time this is partly due to the still significant incidence of infectious diseases in many of our communities. Availability of empirical data would not only have revealed the magnitude of the problem but would also have helped in identifying the risk factors and target groups so that a scientific approach to prevention can be planned.

Most of the available information on road traffic injuries in Tanzania is based on selected hospitals in Dar es Salaam<sup>8,10</sup>. For this reason they may not reflect the true picture of this problem even in Dar es Salaam itself. It was with such background that the authors decided to analyse the police data on road traffic injuries in order to supplement the diversity of existing information.

## Materials and methods

The data recorded at the police headquarters in Dar es Salaam was analysed.

Potential Limitations of the Data included the following:

1. Lack of demographic characteristics thus making it difficult to see how these injuries varied across different age groups and by sex.
2. Some concepts used were rather loaded and subject to different interpretation such as “reckless / dangerous driving” .
3. It was not clear what constituted an accident.
4. When alcohol was considered as the cause it was not quite clear whether this was based on blood alcohol test or impressions of the police at the site of accident or reports from other people. .
5. The police data used was the lacked linkage to health data statistics.

## Results

Between 1990 and 2000 the number of road traffic accidents rose from a total of 10,107 to 14,548, an increase of almost 44%. The number of associated injuries increased by more than 42% from a total of 9,910 to 14,094 while that of death rose by more than 64% from a total of 1,059 to 1,737 deaths (Table 1). Passengers constituted 56% of those injured followed by pedestrians (25%) (Table 2). Among those who died, 40.1% were passengers followed by pedestrians (38.4%) (Table 3). Although pedal cyclists are rarely targeted with road safety education, they constituted 12.3% of all deaths recorded. Only 6.5% of those who died were drivers while the rest (2.6%) were motorcyclists.

Drivers inappropriate behaviours [defined by police as reckless or dangerous driving] contributed nearly 52% of the different reasons cited as contributory causes. (Table 4)

A wide variation in the number of road traffic injuries by region was also observed

**Table 1.** Number of accidents and related consequences during 1990 – 2000 period

Year	No. of accidents	No. of deaths	No. of injuries
1990	10,107	1,059	9,910
1991	10,611	1,129	10,249
1992	11,865	1,367	11,406
1993	12,595	1,483	11,523
1994	13,781	1,548	12,377
1995	13,767	1,663	12,625
1996	14,050	1,809	12,515
1997	14,335	1,625	12,490
1998	12,234	1,583	11,381
1999	13,478	1,612	12,845
2000	14,548	1,737	14,094
Total	141,371	16,615	131,415

**Table 2.** Distribution of those who were injured in road traffic accidents during 1993 – 1999 period.

Year	Drivers	Passengers	Motor Cyclists	Pedal Cyclists	Pedestrians	Total
1993	655	6837	381	1047	2572	11492
1994	849	7104	475	1203	2746	12377
1995	665	7281	379	1250	3051	12626
1996	621	7449	394	1225	2826	12515
1997	734	6432	502	1164	3658	12490
1998	583	6321	458	1212	2807	11381
1999	578	6641	472	1271	3883	12845
Total	4685	48065	3061	8372	21543	85726

**Table 3.** Distribution of those who were died in road traffic accident

Year	Driver	Passenger	Motor Cyclists	Pedal Cyclists	Pedestrians	Total
1993	97	597	37	146	606	1483
1994	100	602	37	202	607	1548
1995	97	686	43	179	653	1663
1996	155	790	37	256	574	1809
1997	90	605	40	227	663	1625
1998	97	623	46	192	625	1583
1999	105	638	55	195	619	1612
Total	741	4521	295	1397	4347	11323

**Table 4.** Reported contributing factors to road traffic accidents

Year	Road Dangerous Driving	Defective Motor Vehicle	Reckless Pedestrian	Careless Motor Cyclists	Careless Pedal Cyclists	Exc. Speed	Intoxicated Driver	Other / bad road	Total
1993	7,882	1,920	819	305	370	349	181	865	15,184
1994	7,358	2,508	1,025	339	326	470	171	984	15,775
1995	8,836	2,804	937	367	323	833	136	931	15,762
1996	7,577	2,308	950	330	1,053	718	175	939	16,046
1997	8,085	2,080	831	1,077	949	362	106	848	16,335
1998	6,079	1,870	799	1,088	392	446	91	969	14,232
1999	5,745	2,283	1,134	311	1,046	773	199	1,987	15,477
2000	7,041	2,797	850	426	924	1,276	170	1,064	16,548
Total	56,603	18,570	7,345	4,243	7,583	5,227	1,229	8,587	109,387

Dar es Salaam region which is the smallest in terms of geographical area, had almost six times the numbers of injuries when compared to the region with the second highest.

## Discussion

Predictions by the World Health Organization [WHO] show that injuries will be responsible for more deaths, morbidity and disability combined worldwide than communicable diseases by the year 2020. Injuries presently account for one in 7 healthy years lost worldwide and by 2020 they will account for one in 5 with low and middle-income countries bearing the brunt of this increase<sup>11</sup>. The majority of the injuries are caused by road traffic accidents. Unfortunately despite this major increase, international recognition and assistance for injury control efforts are well below the level of those directed at other health problems<sup>12</sup>.

In 1997, it was required that all passenger vehicles install speed 'governors' limiting the speed to 80 kms per hour. Unfortunately this measure again seems to have had only temporary / short timed effect. This strongly suggests interventions focusing on road users behaviours rather than the vehicle could have been more effective.

Passengers accounted for the majority of those injured or killed. This result probably was expected given the fact that passengers constitute the majority of vehicle users. Of more concern were the large number of pedestrians who constituted the second highest numbers of the injured and the dead. Although disturbing, this finding has consistently been reported in many developing countries<sup>13,14</sup>. Public awareness on road use is fairly low and pedestrians are less likely to use walking pavements even when they are available<sup>15</sup>. The above factors have combined to make the risk of injury to pedestrians in developing countries as high as 20 times when calculated per capital<sup>14</sup>.

The city of Dar es salaam accounted for 18% of those killed in accidents and 30% of the injured. The orthopaedic/trauma wards of Muhimbili Orthopaedic Institute bear testimony to this with a bed capacity of 165, the occupancy rate is over 140%. The majority of the injured admitted in these wards [80%] are due to road traffic accidents<sup>8</sup>.

In analysing the common causes of road traffic accidents, the Tanzanian police attributed 51.6% of the accidents to reckless/dangerous driving. Defective motor vehicles account for 15% of all accidents. Most developing countries including Tanzania don't have effective regulations, which put defective vehicles off the roads.

However of more interest is that almost 7% of the accidents have been attributed to careless pedestrians, 3% careless motorcyclists and another 7% careless pedal cyclists. This probably is a tendency for victim blaming as the Ghanaian saying of "the Dead are always

wrong" seem to imply. Most of the roads do not have side pavements for pedestrians or cyclists and sometimes all road users have to crowd on the road. Similarly they are few crossing signs on the streets and the drivers routinely ignore those present as mentioned above.

Alcohol abuse as a cause of accident has been attributed only to about 1%. However it is an open secret that drivers drink and drive with impunity. Not uncommonly most of the accident victims including drivers, passengers and pedestrians are admitted in gross intoxicated alcohol situation levels. However, the Tanzanian Police have no mechanism for measuring blood/alcohol content. The few breath analysers are routinely under utilized and this could be a source of under reporting. In Zambia, it was found that 30% of killed drivers, pedestrians and cyclists had unacceptable level of alcohol in the blood<sup>15</sup>. This could represent a more appropriate number than the 1% given by the Tanzanian Police.

The failure of measures taken by the government to limit the incidence of accidents show that measures targeting the vehicle cannot succeed. It means alternative ways have to be looked into.

The findings in this study call for a need to educate the public, drivers, the police, policy makers and health service providers. For interventions to be effective however, there is need to collect supporting data to existing information on road traffic injuries in order to develop specific intervention measures to different types of road users as well as those who in one way or another have a role to play in road traffic injuries and related consequences.

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