CASUALTY TRENDS IN ROAD TRAFFIC ACCIDENTS

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SUMMARY
Data on accidents collected at the Headquarters of Motor Traffic Unit in Accra (1993-1997) and accident returns accumulated at the Building and Road Research Institute (BRRI) for the period 1990-1997 was analysed. Casualty trends and distribution of casualties by severity of injuries were also computed. There are indications that, there is an annual startling increase in the number of accident cases (8.7%), the number of vehicles (10.0%) involved in accidents and consequently the number of casualties (8.8%). Among the accident related casualties, pedestrians form the largest contingent (23.4%), while passengers on cars and buses together account for 43.8% of accident related casualties and others accounted for 33.8%. Fatality is highest among occupants of buses (27.4%), severely injured is highest among pedestrians (24.2%) and slightly injured is highest among occupants of cars (21.7%). Most accident victims sustain very severe injuries (45%) while 11.0% die.

Keywords: Casualty trend, road traffic accidents, injuries.

INTRODUCTION
Recent predictions by The World Health Organisation (WHO) on injury by the year 2020 have created a new atmosphere of awareness of the effect of injury on the society. This has come about due to the undue neglect of trauma in favour of infectious and communicable diseases.

However, recent activities at the floor of the house of Legislature, has shown that, Ghana is gradually waking up to the various toll of trauma, especially road-traffic related, on the society. As sad as it is, little research is going on in the field of trauma management. Further more there is no trauma registry and as such data is not available regarding the overall causes, number and severity of trauma and finally mortality. This to a certain extent, coupled with the financial constraints, have impeded the establishment and implementation of a trauma system, which is well tailored to fit the condition of our country.

MATERIAL AND METHODS
Data for this study include the following:
1. All accidents and trauma returns for the period 1993-1997 nation-wide sent to the Headquarters of the Motor and Traffic Unit (MTU) in Accra.
2. All accidents and casualty returns for the period 1990-1997 accumulated at the Building and Road Research Institute (BRRI).

For the purpose of this study, the following were analysed:
1. Number of accident cases.
2. Number of vehicles involved in Road Traffic Accidents (RTA).
3. Number of casualties.
4. Number of casualties per mode of transport.
5. Casualty trends and distribution according to severity of injuries.

Classification of injuries by severity was by designed format compiled by BRRI:
Fatal – All accidents are recorded as fatal if only the victim died within 30 days of the accident else it is recorded as severe injuries.
Severe injuries – All accidents in which victims were hospitalized for more than 24 hours.
Slight injuries – All accidents in which victims were detained in the hospital for less than 24 hours.
Pedestrian shown in table 2 indicated that, the subjects were involved in accidents as pedestrians. In all other cases the casualties are referred to the occupants of the vehicle. HGV as shown in this table is referred to as heavy goods vehicle. All other in-
formal forms of transportation as trolleys etc. are considered as others.

Annual rate of increase in \( \% (t) = \frac{\text{Total of yearly } \% \text{ increase}}{(n-1)} \) \( (n=\text{total number of years}) \).

**RESULTS**

Figure 1 displays the casualty trends in road traffic accidents in Ghana for the period 1993-1997. Casualties with slight, severe injuries and fatalities show similar trends. From 1993-1996, there was a steady increase in the incidence of casualties, but in 1996-1997 there was a sharp increase in the numbers of casualties.

![Figure 1 Casualty trends 1993-1997](image)

Table 1 displays the distribution of the number of accident cases, the number of vehicles involved in RTA, as well as the casualties as a result of RTA for the period 1993-1997. The number of cases increased annually on the average of 8.7% and that of the number of vehicles by 10.0% while the number of casualties had an annual average increase of 8.8%.

**Table 1 Accident trends in Ghana (1993-1997)**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Cases</th>
<th>No. of Vehicles</th>
<th>No. of Casualties</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>9088</td>
<td>14483</td>
<td>6400</td>
</tr>
<tr>
<td>1994</td>
<td>9718</td>
<td>13800</td>
<td>6227</td>
</tr>
<tr>
<td>1995</td>
<td>10163</td>
<td>16464</td>
<td>6212</td>
</tr>
<tr>
<td>1996</td>
<td>10309</td>
<td>15773</td>
<td>6006</td>
</tr>
<tr>
<td>1997</td>
<td>13558</td>
<td>20468</td>
<td>8989</td>
</tr>
<tr>
<td>Total</td>
<td>53733</td>
<td>38098</td>
<td>34434</td>
</tr>
</tbody>
</table>

In the case of the slightly injured, occupants of cars formed the largest group (27.0%), followed by pedestrians (23.4%). Occupants of buses produced 19.1% while 9.6% of the slightly injured were found among occupants of “trotro”. Motorbikes and bicycles produced a total of 5.5% of the slightly injured.

Pedestrians from the largest contingents casualties (23.4%), followed by occupants of cars (22.0%), while occupants of buses constitute (21.5%). Occupants “trotro” account for 11.1%, and others 0.1%.

![Figure 2 Distribution of injuries by severity](image)

Table 2 shows the casualties by means of transport and according to severity of injury. The largest group of fatalities is found among occupants of buses (27.4%), followed by pedestrian (19.8%), while the same numbers are found among occupants of cars and “trotro”. Motorbikes and bicycles together produced 2.5% of all fatalities.

**Table 2 Casualty by means of transport by severity (1990-1997)**

<table>
<thead>
<tr>
<th>Means of Transport</th>
<th>Fatal (%)</th>
<th>Severe Injury (%)</th>
<th>Slight Injury (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian</td>
<td>1420 (19.8)</td>
<td>7210 (24.2)</td>
<td>2679 (23.4)</td>
<td>15369 (23.4)</td>
</tr>
<tr>
<td>Car</td>
<td>1057 (14.7)</td>
<td>5665 (19.0)</td>
<td>7692 (27.0)</td>
<td>14414 (22.0)</td>
</tr>
<tr>
<td>HGV</td>
<td>966 (13.5)</td>
<td>2301 (7.7)</td>
<td>2296 (8.0)</td>
<td>5526 (8.5)</td>
</tr>
<tr>
<td>Tractor</td>
<td>124 (1.7)</td>
<td>312 (1.0)</td>
<td>222 (0.8)</td>
<td>658 (1.0)</td>
</tr>
<tr>
<td>Bus</td>
<td>1968 (27.4)</td>
<td>6852 (19.1)</td>
<td>5432 (19.1)</td>
<td>14252 (21.8)</td>
</tr>
<tr>
<td>“Trotro”</td>
<td>1045 (14.0)</td>
<td>3531 (11.8)</td>
<td>2728 (9.6)</td>
<td>7304 (11.1)</td>
</tr>
<tr>
<td>Motorbike</td>
<td>81 (1.1)</td>
<td>901 (3.0)</td>
<td>745 (2.6)</td>
<td>1727 (2.6)</td>
</tr>
<tr>
<td>Pickup</td>
<td>401 (5.6)</td>
<td>2336 (7.8)</td>
<td>1872 (6.0)</td>
<td>4609 (7.0)</td>
</tr>
<tr>
<td>Bicycle</td>
<td>100 (1.4)</td>
<td>707 (2.4)</td>
<td>817 (2.9)</td>
<td>1624 (2.5)</td>
</tr>
<tr>
<td>Others</td>
<td>8 (0.1)</td>
<td>22 (0.1)</td>
<td>47 (0.2)</td>
<td>77 (0.1)</td>
</tr>
<tr>
<td>Total</td>
<td>7170 (100)</td>
<td>29837(100)</td>
<td>28503(100)</td>
<td>65510 (100)</td>
</tr>
</tbody>
</table>

Among the severely injured, pedestrians form the largest contingent (24.4%), followed by occupants of buses (23.0%). Cars and “trotro” produced 19.0% and 1.8% respectively. Motorbikes and bicycles produced a total of 5.4% of the severely injured.
severely injured, 44% were slightly injured whiles 11% died.

DISCUSSION

Road traffic accidents have been the leading cause of fatal injuries in developing nations\(^4\). In some countries, there has been a steady yearly increase in trauma cases for the past three decades.\(^5\) According to the World Health Organisation (WHO) predictions, trauma will be the first or second leading cause of years of life lost for the entire world’s population, including both developing and developed nations.\(^6\) While developed countries have instituted scientifically proven measures to reduce the effects of trauma on their society,\(^7\) this has sadly not been the case in developing countries. Various reasons have contributed to this disparity.

Firstly, governments in the developing countries have not shown enough political will and as such, countries like Ghana face the problem of lack of appreciation of the importance of trauma as a health problem even by the population as a whole.\(^1\)

Secondly, health policy agendas are largely set outside the country by groups such as the World Health Organisation and Non Governmental Organisations (NGO’s), unfortunately, none of these groups has placed injuries on their agendas.\(^4\)

Thirdly, in a situation of restrictive financial resources, funding for research into trauma management will greatly be limited.\(^4\) Most developing nationals do not even have trauma register. As a result, neither injury prevention nor trauma treatment has been well addressed, even at the national level.

Despite the difficulties and inadequacies in the data collection in the country, this study has shown in figure 1 that, there has been a gradual increase in the fatal casualties in the period 1992-1996, whereas 1996-1997 witnessed a sharp increase in the numbers of fatal casualties. Similar trends were noticed amongst casualties with slight and severe injuries. Given the assumption that these indications point to an ever-increasing numbers of accidents, as confirmed in table 1, where the annual average rate of increase for the of cases runs around 8.7% and the number of vehicle as 10.1% while the number of casualties is pegged at 8.8%, then by the year 2020, Ghana shall be experiencing staggering numbers of accidents and casualties with various severity of injuries. The toll of such astronomical levels of accidents and casualties may have very serious and diverse consequences on our economy.

Table 2 indicates that, the highest number of fatal casualties is found amongst the occupants of buses (27.5%) followed by pedestrians (19.8%). Fatal casualties amongst the occupants of buses, and “trotro” vehicles put together form a large contingent (41.4%) of road traffic related deaths. These are the main means of passenger and commuter transport. Of major concern are the fatalities among occupants of cars (14.7%). Of great importance are fatality levels from motorbikes and bicycles together (2.5%). It is important to note the actual mechanisms and causes of death by these modes of transport. Knowledge on how death occurs in these situations could enable the appropriate measures to be recommended.

As in this study, pedestrians are the most severely injured (24.2%). Assuming that few pedestrians are found on the highways, it can then be inferred that, most pedestrian injuries occur in the urban areas and these injuries are severe. It is therefore not surprising that, the incidence rate of non-fatal injuries per 1000 persons per year, is higher in the urban areas than rural (Transport 9.4 to 9.3)\(^5\).

As in other less developed countries, accidents involving pedestrians form the majority of the motor vehicle related casualties.\(^3\) This is approximately 23.4% of the total number of casualties.

The main form of inter-city, long distance, passenger transport is by bus, and not only is the largest contingent of fatalities found among occupants of buses but also 23.0% of the severely injured are passengers travelling by bus.

Cars produced the largest number of casualties among all the motorized means of transport (22.0%), and the largest contingent of the slightly injured were found among the occupants of cars.

It is important to note that, casualties amongst occupants of cars and buses form a substantial group. Together they forms 42.8% of the total number of casualties.

In the urban areas, the main commuter transport is “trotro”, significantly, 14.0% of fatalities is found among its occupants while producing 11.8% of the severely injured and 9.6% of the slightly injured. Its share of the total number of casualties is 11.1%.

Similarly, heavy goods vehicles do the bulk and general goods haulage and surprisingly 13.5% of fatalities, 7.7% of the severely injured and 8.0% of the slightly injured are found among their occu-
pants. These vehicles are not allowed to carry passen-
gers and the figures shown in table 2 indicate
that the casualty levels are very high (8.5%).
Sadly, most victims of road traffic related accidents
are severely injured (45%), 11% of accident victims
die, while 44% are slightly injured.

Considering the above, the reasons why accidents
by the various means of transport do occur need
further extensive research. Further research into the
causes of various severity of injuries must also be
done for effective formulation and institution of
preventive measures. Furthermore, the causes of
death in road traffic accidents in Ghana are yet to
be compiled and analysed.

Interestingly the results of treatment of trauma na-
tion-wide are not known. Furthermore, the toll of
injury on the society has been a matter of specula-
tions.

 Appropriately, these information ought to be avail-
able in the trauma registry, unfortunately this does
not exist.

CONCLUSION
Despite the inadequacies and difficulties in data
collection in the country as a whole, this paper has
sought to highlight the following:-

In Ghana, injury due to motor traffic accident is a
major health problem, as shown by increasing rate
in the number of accident cases (8.7%), number of
vehicles involved in accidents (10.0%) and the
number of casualties (8.8%).

Pedestrian casualty is the largest contingent of
casualties (23.4%) followed by casualties from cars
(22.0%) and buses (21.8%).

Cars and buses combined are responsible for the
largest number (43.8%) of accident related casual-
ties.

Fatality among victims is highest among occupants
of buses (27.4%) followed by pedestrians (19.8%).

Severely injured is highest among pedestrians
(24.2%) followed by occupants of buses (23.0%).

Slightly injured is highest among occupants of cars
(27.0%) followed by pedestrians (23.4%).

Most of the accident victims sustained severe inju-
ries (45%) and about 11% of the victims died. The
types of injuries and the causes of death are not
recorded and data on them is difficult to come by.

There is the need, therefore, for the establishment
of information systems like trauma register to en-
able the proper collection of data for scientific
analysis and for the development of trauma man-
agement systems.

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