

ABSTRACT

The study was conducted in the Accident and Orthopaedic Service of the National Hospital of Sri Lanka, Colombo in Sri Lanka from 15th July 2005 to 30th October 2005. All Road Traffic Accident victims who were admitted to the AOS, other than those excluded according to the adopted methodology were recruited. The study was carried out in six components. During the study period, 685 subjects fulfilling the inclusion criteria were studied. Of the 685 patients, 46 died resulting in an overall death rate of 6.72% and death rates of 7.82% and 5.59% among pedestrians and vehicle occupants.

This study confirms the universally accepted fact that Road Traffic Injuries are 'diseases' affecting mostly young males. This implies that persons from the most active and productive age groups are most involved in RTAs, causing a serious economic loss to the community.

The vehicles responsible for causing the most amounts of injuries to pedestrians were motorised two wheelers followed by trishaws. While one in four pedestrians sustained injuries due to accidents with motorised two wheelers, one fifth of the pedestrians got injured due to trishaws. In terms of the severity of injuries caused to pedestrians, on average, buses were accountable for causing most severe injuries to pedestrians (mean ISS= 11.7) followed by pickup/van/jeep category (mean ISS= 9.3), and truck/lorry/container category (mean ISS= 7.6). The severity of injuries caused by the truck/lorry/container category was similar to that of motorized two wheelers (mean ISS= 7.5).

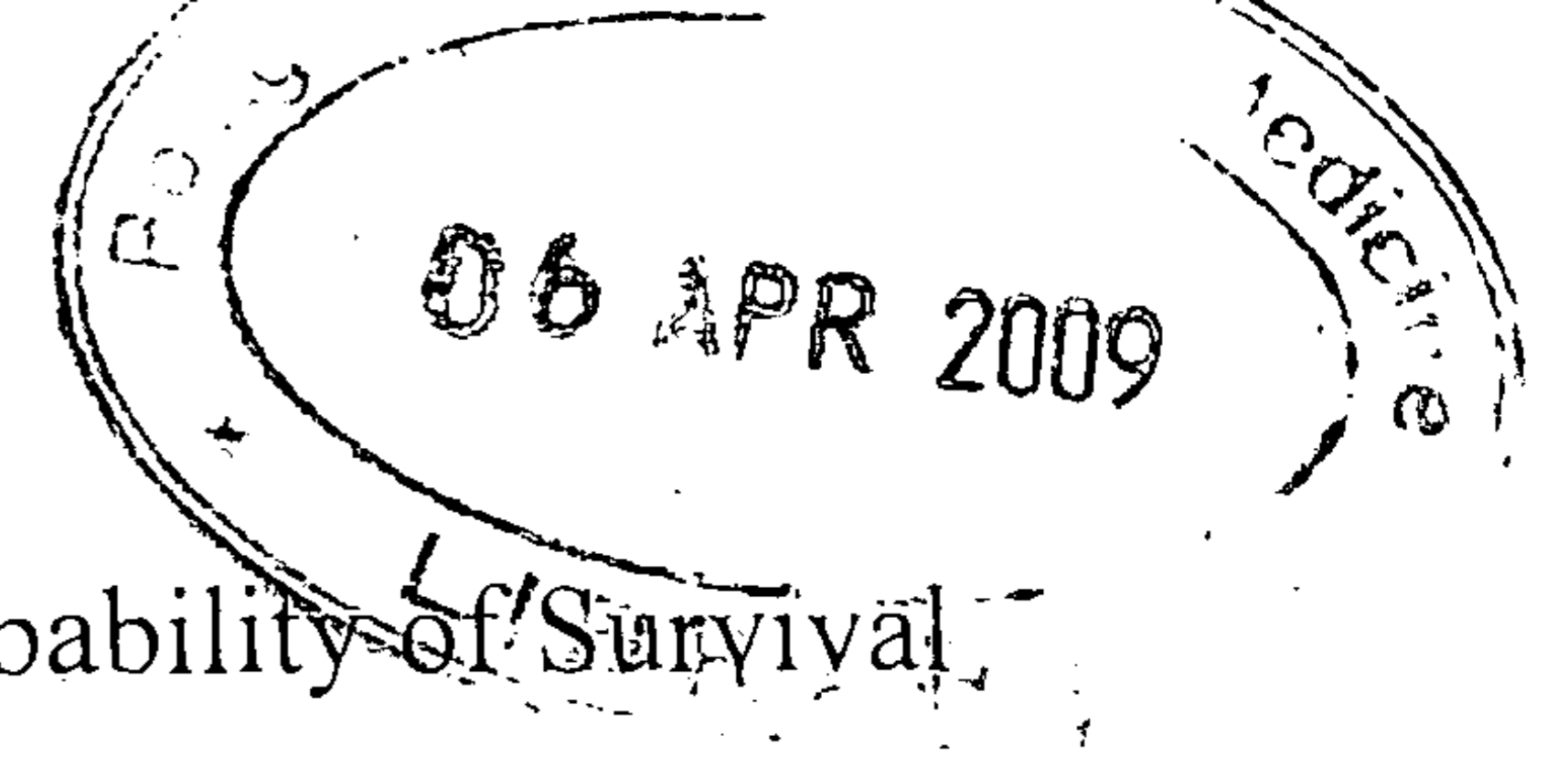
One half of injured vehicle occupants travelled in trishaws, followed by buses (17.6% vehicle occupants), and pick up/van/jeep category (14.4% vehicle occupants). The pick up/van/jeep category comes within the first three leading types of vehicles that cause injuries to pedestrians, that cause more severe injuries, and that cause injuries to vehicle occupants.

The mean ISS of the total sample was 7.15 and the median was 4. The pedestrians recorded a higher incidence of major trauma (19.2% of pedestrians) as compared to vehicle occupants. Only 7.5% of vehicle occupants were categorized as having 'major trauma'. The injury severity of pedestrians was significantly higher than vehicle occupants when measured by all three injury severity scores. There was a significant difference between the average age of pedestrians (45.5 years) and that of vehicle occupants (36.1 years). Pedestrians also had a higher mortality rate.

The injury profile findings of this study confirm to a great extent the findings of previous studies, such as the greater involvement of extremities, the head and neck, involvement of the lower extremities as the major site of fractures, a higher incidence of head injuries and lower extremities among pedestrians.

There was a significant association between the RTS value and outcome ($p < 0.001$).

There was a strong correlation ($r = 0.84$, $p < 0.001$) between RTS and the probability of survival (Ps). An increase in the death rate with the increase of the AIS grade of the most severe injury was observed. When classified using ISS, the death rate among 'minor trauma' patients was 0.30%, and that of the 'major trauma' category was as high as 36.66%. There was a significant linear trend between ISS and outcome ($r = -0.56$).



There was a tendency of more survivors with increasing values of Probability of Survival (Ps), as expected. The findings of this study are similar to the findings of the base dataset in the US.

The mean treatment costs of all cost components (surgical consumables and dressings, medication, investigations, surgical procedures, and patient day cost) in ascending order were as follows: 'Other', 'Orthopaedic', and 'ASICU' patients. There was a significant difference between the average cost incurred by 'ASICU' patients and 'Orthopaedic' patients. The patient day cost was the highest cost component of the total treatment cost in all three categories of patients.

The cost incurred on pedestrians as against vehicle occupants was variable according to the patient category. In the 'other' category more resources, in terms of Sri Lankan Rupees, though not significantly, were incurred on pedestrians (Rs. 6515.62) than on vehicle occupants (Rs. 5994.52). Among the 'orthopaedic' category, the mean cost was higher for vehicle occupants (Rs.42926.34) than for pedestrians (Rs. 31869.37), though not significantly. The mean cost of treatment in the ASICU was higher, though not significantly, for pedestrians (Rs. 105,348.95) than for vehicle occupants (Rs. 77,792.23). The mean cost on surgical procedures was similar in pedestrians (Rs. 14586.68) and vehicle occupants (14720.30).

The mean length of stay of 'orthopaedic' patients was 22.9 days. The average stay of patients in the ASICU was 5.7 days. There was no significant difference in the length of stay of pedestrians and vehicle occupants.

In this study, the higher AIS grades of the most severe injury was significantly associated with increase in the mean total cost ($p < 0.001$). Patients with an AIS grade of 4 or more of the most severe injury accounted for the highest mean per patient cost i.e. Rs. 172,499.64. An increase in the length of stay was observed with higher AIS grades of the most severe injury. There was no significant association between ISS and length of stay in our study population.

Both the AIS and ISS showed a better association with the cost of treatment than with the length of stay. The length of stay proved to be the best independent predictor of cost of treatment ($r = 0.76$, $p < 0.001$). A good correlation also existed between RTS and cost of treatment ($r = 0.39$, $p < 0.001$). In this population, RTS while being a reliable triage tool can also predict the cost of treatment better than other injury severity measures considered.