ABSTRACT

The road accident scene in India, as in many developing countries, is characterized by mixed traffic comprising human-powered vehicles such as bicycles and tricycles (cyclerickshaws), animal-drawn carts, and motor vehicles of various sizes and speeds. Different kinds of models built in various countries to study the accident scene have been discussed. It is shown that these models are not comprehensive in accounting all the variables associated with the traffic accident scene. It has also been shown that a large number of variables are to be used to study the accident scenes of Indian urban roads. Variables such as handrail index, congestion index, bicycle lane index, pedestrian violators, disturbance index, interactions between different kinds of modes, road features etc., are considered as independent variables influencing the accident scene.

Multiple Linear Regression approach is selected as the suitable approach to build the model to account all the variables. Anna Salai and Periyar Salai, the two urban arterials in Madras city are considered for detailed analysis. Data collected from 1985 to 1990 have been used to build the model and evaluate its effectiveness. Statistical techniques have been used to study its acceptability. The model recommended for estimating road traffic accidents in an urban arterial for six-months period has fifteen independent variables. The model is found to estimate the accident scenes with a variation of 10% in most of the cases.

The model has been used to estimate the future accident scene. It has also been shown how introduction of bicycle track and pedestrian guard handrails along kerbs could change the accident scene.