Road Safety Models of Highway- A Review

Akshay Vashist

Former M.Tech Scholar,
Department of Civil Engineering
D.C.R.U.S.T. Murthal
Email: itsakshay18@gmail.com

Abstract:

In the present study, the few models for road safety of highways can be discussed by the different investigators were presented. Some investigators also suggested that the importance of the road infrastructure characteristics, such as the degree of horizontal curvature, the number of lanes, shoulder widths and the road section's length.

Introduction:

With the expansion in road network, motorization and urbanization in the country, the number of road accidents have increased manifold in the recent past. Road traffic injuries (RTIs) and fatalities have emerged as a major public health concern. With RTIs having become one of the leading causes of death, disabilities and hospitalizations, road accidents are found to impose severe socio-economic cost across the world

Review of Literature:

Abdel-Aty and Radwan (2000) concluded that the frequency of accident occurrence on a principal arterial in Central Florida by employing negative binomial models a types of model study show the best fit of result. This paper highlighted the importance of the road infrastructure characteristics, such as the degree of horizontal curvature, the number of lanes, shoulder widths and the road section's length. The results showed that people driving on a road with narrow lane and shoulder width, a larger number of lanes and reduced median width were more likely to be involved in accidents.

Noland et al. (2003) investigated that the effects of infrastructure changes on road traffic accidents will effect other factors that may affect the occurrence of such accidents were controlled. The variables on infrastructure characteristics included lane miles, number of lanes for different types of road and the proportion of each type of road. It is also suggested that certain changes in road infrastructure in the US between 1984 and 1997 had the effect of increasing absolute total number of traffic casualties occurs based on proper design aspects. Their results suggest that an increased length of road can increase serious injuries, although the coefficients for other types of road were not significant. It is also found that increased road accidents were associated with increased number of lanes, increased lane widths and decreased outside shoulder width. One suggestion made by them was the need to account for time-variant factors.

Peden et al. (2004) is also suggested that the systematic approach for the examination of road safety aspects of road under various components like infrastructure, vehicle, and road to develop a strategies for prevention of road accident. Further it is also state that, six general recommendations were provided: (1) identify a lead agency in government to guide the national road-safety effort; (2) assess the problem, policies, and institutional settings relating to road-traffic injury and the capacity for road-traffic-injury prevention in each country; (3) prepare a national road safety strategy and plan of action; (4) allocate financial and human resources to address the problem; (5) implement specific actions to prevent road crashes, minimize injuries 2 and their consequences, and evaluate the impact of these actions; and (6) support the development of national capacity and international cooperation.

According to Park et al. (2010) is investigated that the severity Index (SI) of every accident is calculated using proportionate weightage of fatal, grievous, minor injury and property damage only and input of Severity Index was used in spatial analysis.

Conclusions:

It has been concluded that the models based of road traffic models that are classified based on the input parameters and the output as a result in terms of statistical data. Some models gives results as a black box models which is used as an application of soft computing techniques for analysis of road safety models

References:

1. Peden, M., Scurfield, R., Sleet, D., Mohan, D., Hyder, A.A., Jarawan, E. and Mathers, C. (eds.) (2004). World report on road traffic injury prevention. Geneva: World Health Organization.
2. Park, S. H., KIM, D.-K., Kho, S.-Y., & Rhee, S. (2010). Identifying hazardous locations based on severity scores of highway crashes. 12th WCTR, July 11-15, 2010, Lisbon, Portugal.
3. Noland, R.B., 2003. Traffic Fatalities and Injuries: The Effect of Changes in Infrastructure and Other Trends. Accident Analysis and Prevention 35, 599-611.
4. Abdel-Aty MA, Radwan A,E (2000).Modeling traffic accident occurrence and involvement. Accid Anal Prev. Sep;32(5):633-42.