

Road Accidents and Safety Analysis In Srinagar City

Qurat Ul Ain ,M.tech Student , Rayat Bahra University Punjab ,India ,

Kiratmushtaq93@gmail.com

Er. Shubham Bhadoriya . Asst. Professor , Rayat Bahra University ,Punjab India ,

loned5995@gmailcom

Abstract - Road accidents are a major cause of injuries and fatalities in cities worldwide. This paper presents a comprehensive review of the literature on road analysis and accidents in cities. The paper first provides an overview of the causes and types of road accidents in urban areas. It then discusses the various methods used for analyzing road accidents and the factors that contribute to them. The paper also reviews studies that have examined the relationship between road design and accidents, including the impact of road geometry, traffic flow, and land use on accident rates. Finally, the paper discusses the effectiveness of various interventions and policies aimed at reducing road accidents in cities.

Keywords : Roads, Accidents, Highways ,Precautions , Traffic , urban areas , policies.

I. INTRODUCTION

Road accidents are a significant public health concern, particularly in urban areas. [1],[2],[3] According to the World Health Organization (WHO), road accidents are the leading cause of death among young people aged 5-29 years, and over 90% of these accidents occur in low- and middle-income countries [4]. In addition to causing fatalities and injuries, road accidents also have economic and social impacts, including medical costs, lost productivity, and reduced quality of life [5]. Given the high cost of road accidents, it is important to understand the factors that contribute to them and to identify effective interventions and policies to reduce them.[6],[7]

One of the major man made catastrophes we overcome these days in the present living world is Road Accidents, slaying oodles of people all over the world[8]. Road Accidents continue to be a somber obstacle to viable human progress mostly in developing countries [9]. After a lot of study in this field experiences show that such massacres can be brought to a minimal up to some extent, as well developed countries have provided different safety measures to bring down the rate of accidents [10]. Road Accidents continue to be a great problem or can be said to be a threat to the economic and social progress of countries like India. In India more than 1 lakh people get slaughtered and many more get injured every year due to road mishaps. Srinagar the summer capital of Jammu and Kashmir has witnessed more than 1500 road accidents in past 6 years. Hence there is a serious need to take a compulsory step for betterment of the road safety atmosphere of the city.

CAUSES AND TYPES OF ROAD ACCIDENTS

The causes of road accidents in urban areas are complex and multifactorial. Some of the common causes of road accidents in cities include driver error, speeding, driving under the influence of alcohol or drugs, poor road design and maintenance, and inadequate traffic management. In terms of the types of road accidents, the most common are collisions between vehicles, collisions between vehicles and pedestrians, and collisions between vehicles and cyclists.

II. LITERATURE REVIEW

- If you are Factors affecting accident severity on rural highways" (Zhang et al., 2020) This study analyzed crash data from rural highways in China to identify factors that contribute to accident severity, including driver characteristics, vehicle factors, road characteristics, and environmental factors.
- "An overview of crash data analysis methods" (Tarek et al., 2021) This review article provides an overview of different crash data analysis methods, including descriptive statistics, regression analysis, and machine learning techniques, and discusses their strengths and limitations.
- "Impact of advanced driver assistance systems on road safety" (Chand et al., 2019) This meta-analysis of studies on the effectiveness of advanced driver assistance systems (ADAS) found that they can significantly reduce the risk of accidents, particularly those involving lane departure and rear-end collisions.

- "Evaluating the impact of speed cameras on road safety" (Elvik, 2019) This systematic review and meta-analysis of studies on the effectiveness of speed cameras in reducing accidents found that they can significantly reduce the number of fatal and injury accidents.
- "Cross-cultural comparisons of road safety: A review of the literature" (Tong et al., 2020) This review article summarizes and compares research on road safety outcomes and interventions across different countries and cultures, highlighting similarities and differences in risk factors and effective interventions.
- "Global status report on road safety 2021" (World Health Organization, 2021) This report provides a comprehensive overview of the current state of road safety globally, including trends in road traffic deaths and injuries, risk factors for accidents, and policy and intervention strategies.
- (Mohan, 2002b). Increasing speed, non-use of helmet, seat-belt, drinking and driving, poor visibility, failure to enforce safety laws and poor trauma care are some of the factors recognized for higher accidents and fatality rates on Indian roads.
- Highlighting the need for traffic law enforcement, Jacobs and Sayer (1983) have pointed out that lack of awareness of traffic rules is one of the major factors of low standard of road- user behavior in the developing countries. O' Neill and Mohan (2002) have advocated for strict enforcement of traffic safety laws for changing road user behavior and establishment of national and regional road safety agencies for improvement in road safety.
- Dandona et al (2005) in their study of traffic law enforcement in Hyderabad, India have advocated the need to enhance the traffic law enforcement activity of the police to make it more visible. Gururaj (2008) has argued that there are scientific evidences from high income countries regarding effectiveness of interventions such as use of helmets, preventing drinking and driving, speed control and use of seat belts in improving road safety. While analyzing the age and gender variations in trend of road traffic fatalities in the city of Manipal, India.
- Kanchan et al (2010) have stressed on the need to re-evaluate the effectiveness and impact of on-going preventive activities by the public authorities. According to these authors, road accidents are preventable by strict enforcement of traffic laws and public awareness. Grimm and Treibich (2012) in their study of road traffic crashes fatalities in India have observed that increase in motorization coupled with urbanization are the general drivers of road traffic fatalities across Indian states. Further, they have emphasized the need of strict enforcement of traffic rules for reduction in road traffic fatalities.
- "Analysis of motorcycle crashes in Europe: A comparison of three countries" (Gouvali et al., 2020) This study compared the characteristics and contributing factors of motorcycle crashes in three European countries (Greece, Italy, and Spain), finding that differences in road infrastructure and culture can impact the risk of crashes.
- "Pedestrian safety analysis: A review of the literature" (Park et al., 2018) This review article summarizes research on pedestrian safety, including risk factors for pedestrian accidents, methods for analyzing pedestrian safety, and interventions to improve pedestrian safety.
- "The impact of alcohol on road accidents in low- and middle-income countries: A systematic review" (Naimi et al., 2020) This systematic review of studies from low- and middle-income countries found that alcohol use is a significant risk factor for road accidents and that interventions such as sobriety checkpoints can reduce the incidence of alcohol-related accidents.
- "Comparing different approaches to road safety analysis using a case study of pedestrian and bicycle crashes in San Francisco" (Yu et al., 2021) This study compared different approaches to road safety analysis, including traditional statistical methods, network analysis, and machine learning techniques, to identify factors contributing to pedestrian and bicycle crashes in San Francisco.

III. METHODS FOR ANALYSING

A range of factors contribute to road accidents in urban areas, including road design, traffic flow, land use, and human factors such as driver behavior and decision-making. Road design factors include road geometry, such as the curvature of the road, and the presence of road features such as roundabouts, traffic lights, and pedestrian crossings. Traffic flow factors include traffic volume, speed, and congestion. Land use factors include the mix of land uses in an area, such as residential, commercial, and industrial, as well as the availability of public transport and pedestrian infrastructure. Human factors include driver behavior, such as speeding and driving under the influence, as well as pedestrian and cyclist behavior, such as jaywalking and riding without helmets.

IV. IMPACT OF ROAD DESIGN ON ACCIDENTS

Several studies have examined the impact of road design on accidents in urban areas. These studies have found that road geometry, such as the curvature of the road and the presence of roundabouts, can have a significant impact on accident rates. In addition, studies have found that traffic flow and land use can also contribute to accidents. For example, high traffic volume and speed in areas with high pedestrian activity can increase the risk of pedestrian accidents.

Various interventions and policies have been implemented to reduce road accidents in urban areas, including engineering, education, enforcement, and evaluation. Engineering interventions include changes to road design, such as the installation of round

Road Transport and Highways, Government of India, New Delhi (Available at <http://www.morth.nic.in>)

- [4] Bureau of Police Research & Development [BPR&D], 2012. Data on Police Organizations in India, As on January 1, 2012. (Available at <http://www.bprd.nic.in>, accessed on 17/09/2013).
- [5] Economic Survey of Delhi, 2012-2013. Government of NCT of Delhi, India (Available at <http://www.delhi.gov.in>). Economic Times, 2013. (Local English daily, dated 20th August, 2013, available at www.economictimes.indiatimes.com).
- [6] Bureau of Police Research & Development [BPR&D], 2012. Data on Police Organisations in India, As on January 1, 2012. (Available at <http://www.bprd.nic.in>, accessed on 17/09/2013).
- [7] Dandona, R., Kumar, G.A., Dandona, L., 2005. Traffic law enforcement in Hyderabad, India. International Journal of Injury Control and Safety Promotion, Vol. 12 (3), 167-176.
- [8] Eluru, N., Bhat, C. R., 2007. A joint econometric analysis of seat belt use and crash-related injury severity. Accident Analysis & Prevention, 39(5), 1037-1049. Evans, L., 1991. Traffic safety and the driver. Science Serving Society. Garg,
- [9] N., Hyder, A., 2006. Exploring the relationship between development and road traffic injuries: a case study from India. European Journal of Public Health, Vol.16, 487-49.
- [10] Grimm, M., Treibich, C., 2012. Determinants of Road Traffic Crash Fatalities across Indian States. Working Paper No.531. International Institute of Social Studies, The Hague, The Netherlands (Available at <http://www.iss.nl>).

V. OBJECTIVES

1. To identify the most common types of road accidents and the factors that contribute to them, such as driver behavior, road infrastructure, or vehicle characteristics.
2. To analyze the effectiveness of various road safety interventions or policies, such as speed cameras, road design improvements, or public awareness campaigns.
3. To evaluate the impact of different factors on the severity of road accidents, such as weather conditions, time of day, or driver characteristics.
4. To compare road safety outcomes or interventions across different regions, countries, or modes of transportation.
5. To develop and test new methods or tools for analyzing road safety data, such as machine learning algorithms or network analysis techniques.
6. To assess the economic or public health costs of road accidents and the potential benefits of investing in road safety interventions.
7. To develop recommendations for improving road safety, based on the findings of the study and relevant policy and regulatory frameworks.

REFERENCES

- [1] SHANKAR KUMAR JHA [November, 2013] Road safety in Delhi Jahangir Afzal Spatial Analysis of Urban Amenities
- [2] Aberg L.[1998], Traffic rules and Safety.
- [3] Agarwal, O.P [2006] Urban Transportation Badami [2009], Urban transport Policy Committee on Road Safety and Traffic Management, 2007. Ministry of