



Probable causes and Preventive measures of Road Accidents at some major intersections of BRTS Indore City

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Abstract

Indore is very densely populated cities in India. The population is increasing day by day, and vehicle population is going on increasing every year. In this paper, we conducted study on road accidents for major part of BRTS Indore city where last five years accidental data was collected, studied the causes and preventive measures to those problems.

Keywords: Densely populated, Accidental Data, Causes, Preventive Measures, Vehicle Population, Densely Populated

1. Introduction

Road traffic accidents can be defined as “An accident that occurred on a road open to public traffic; resulted in one or more persons being killed or injured, and at least one moving vehicle was involved” [1]. The problem of accident is a very acute in highway transportation due to heterogeneous flow pattern of vehicular traffic, presence of mixed traffic along with pedestrians.

Traffic accident results in loss of life and property. Road accidents cannot be totally prevented but by suitable traffic engineering and management the accident rate can be minimized.

In a country where 34 births happening every minute and over 10 deaths happening every minute [2]. Most people in India always try to find a way to break the traffic rules and try to get away with it. Jaywalking, overtaking on the wrong side, not following the traffic rules, parking on the wrong side of the road, driving without helmet and careless driving are very common in India.

The development of public transport system has not kept pace with the traffic demand both in terms of quality and quantity. As a result, the use of the undesirable modes such as personalized transport, mainly 2 wheelers, and 3-wheeler is growing at a rapid speed.

The highest number of accidents were found in India as per WHO and mostly M2W riders and trucks have a greater number of accidents rate in year 2011 [3].

In India road traffic accidents affect all age groups and all genders. However more than 83% of victims are males [4].

Road traffic deaths in urban India have consistently been a major issue of concern [5]. The problem of accident is a very acute in highway transportation due to complex flow pattern of vehicular traffic, presence of mixed traffic along with pedestrians. Accidents are multifactor and random. Traffic accident leads to loss of life and property. Thus it is imperative that traffic engineers take the big responsibility of providing safe traffic movements to the road users and ensure their safety.

The aim of zero causality is although difficult even considered impossible by some, but with the latest technologies and advancement in the field it is possible to reduce this in fractions per 100,000 population. This will require a significant investment [6].

Traffic accidents in deaths constitute 40% of the total accident deaths in India, which is not sufficiently recognized by lay by public [7]. The nature of problem in developing countries is in many ways different from that in industrialized world. The proportion of commercial and public service vehicles involved in road accidents are often much greater. Pedestrians and cyclists are often the most vulnerable. Lack of medical facilities in these countries is an important factor leading to high death rates [8].

1.1. Causes of road accidents- [10]

The various causes of road accidents are:

1. Road Users - Excessive speed and rash driving, violation of traffic rules, failure to perceive traffic situation or sign or signal in adequate time, carelessness, fatigue, alcohol, sleep etc.

2. Vehicle – Vehicular defects like failure of brakes, partial working steering system, tyre burst, improper lighting system.

3. Road Condition-Skidding Road surface, potholes, ruts.

4. Road design - Defective geometric design like inadequate sight distance, inadequate width of shoulders, improper curve design, improper traffic control devices and improper lighting,

5. Environmental factors -unfavorable weather conditions like mist, snow, smoke and heavy rainfall which restrict normal visibility and makes driving unsafe.

6. Other causes -improper location of advertisement boards, gate of level crossing not closed when required.

1.2 Results of Reckless Driving



Figure 1: November 26,2017(DainikBhaskar) A young man was seriously injured after coming to a speeding car. The incident is of Palasia intersection. After the car driver hit a young man riding on the first Active here, after that he entered the car in the lightning pillar [11].



Figure 2: January 22,2017(Naidunia) Five youths left home to celebrate the birthday of a friend, died on A.B. Road in a road accident. Over speeding was the main cause for accident [12].

2. Methodology

Five years of data was collected from BRTS portion of Indore City with the help of different police station like-Vijay Nagar, Lasudia, MIG, Sanyogitaganj, Bhawarkua, Palasia. This data was organized in the order of month, year, and vehicle type to find accidental causes, areas, and vehicles responsible for traffic accidents.

3. Study Area

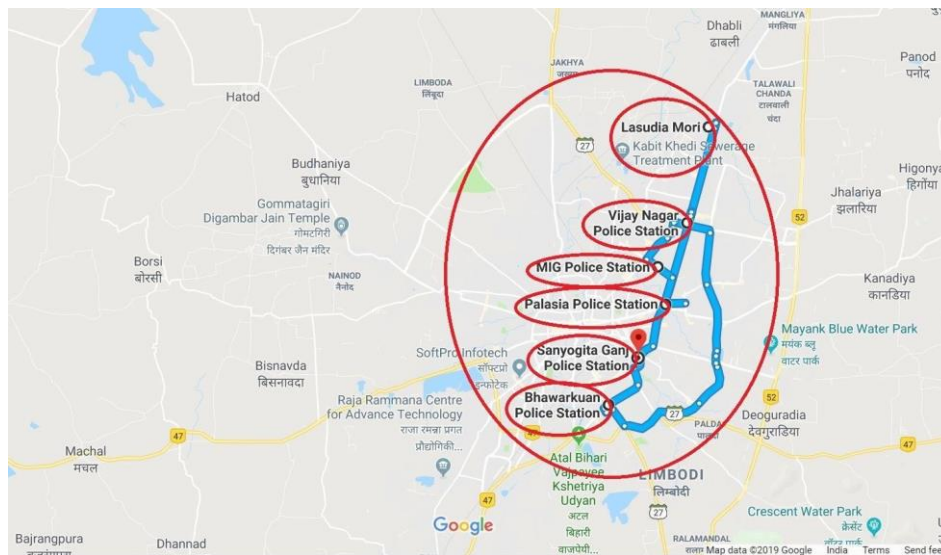
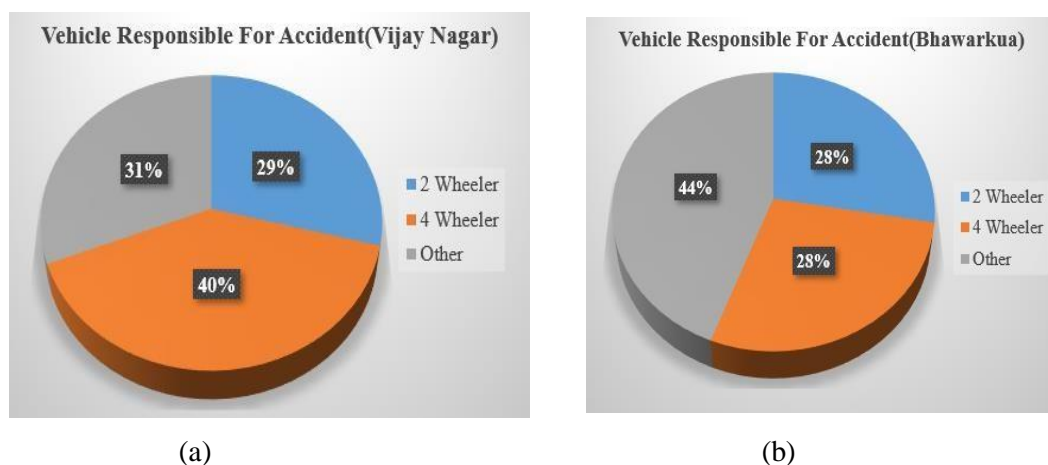


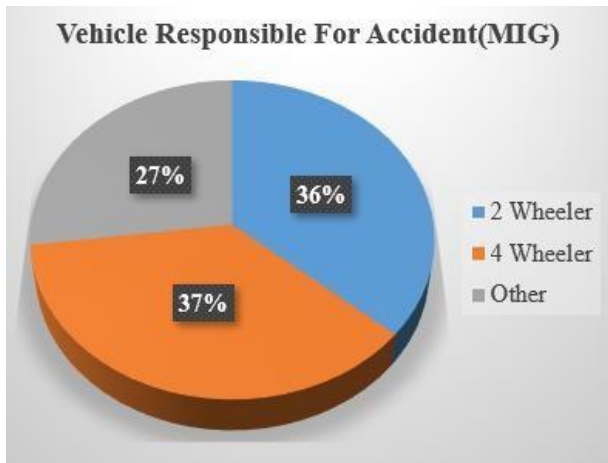
Figure 3: Google map for BRTS portion of Indore city [13].

4. Result and discussion

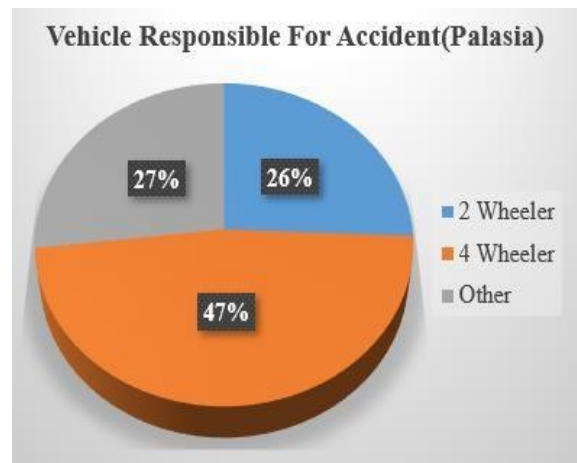
After taking survey, results were plotted in the form of pie chart and graphs.

4.1 Pie charts

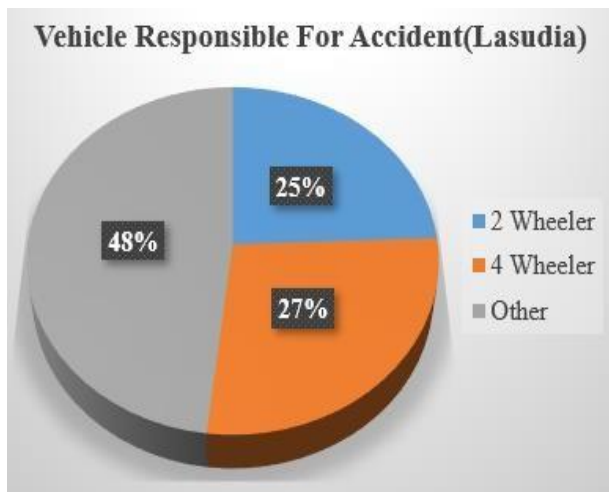




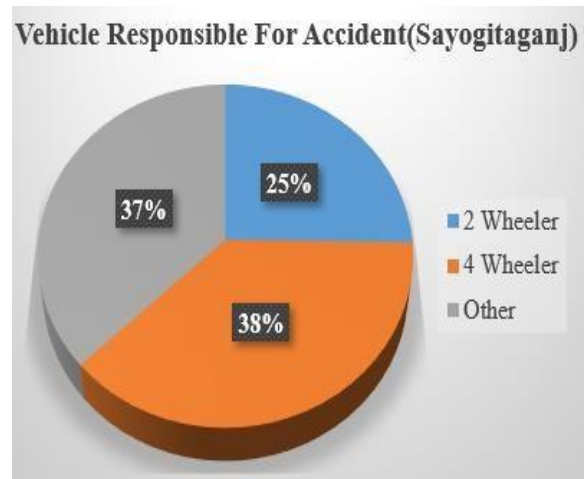
(c)



(d)



(e)



(f)

Figure 4: Pie charts for East portion of Indore (a) Vijay Nagar, (b) Bhawar kua, (c) MIG, (d) Palasia, (e) Lasudia and (f) Sayogitaganj

In figure 4, we can see that pie chart is providing information for every area and type of vehicle responsible for traffic accident in that particular area. 4-wheelers are more responsible for higher number of accidents as Vijay Nagar is well developed and modern area of city and most people travel with their car to offices and mall. This also applies for areas like MIG, Palasia and Sayogitaganj where again people prefer 4-wheeler as compared to 2-wheeler. But for areas like Bhawarkua and Lasudia, light and heavy commercial vehicles are highly responsible for accidents as there is transport Nagar, warehouses and small-scale industries in that area which calls

for goods pick up and drop. Graphs are the best representation of any data and in 4.2 graphs, Figure 5 provides information for number of deaths occurred in every month for each year. 2014 accounts for highest number of deaths i.e., 130 deaths in several months and an average of about 100 deaths in each month. These accidents reduced with increasing number of years, but again went up for year 2018 i.e., 105 in October and averagely 80 accidents per month. Though it is still lower than 2014 but could be dangerous for coming years if initiations to reduce accidents is not taken at war footing.

2.1 Graphs

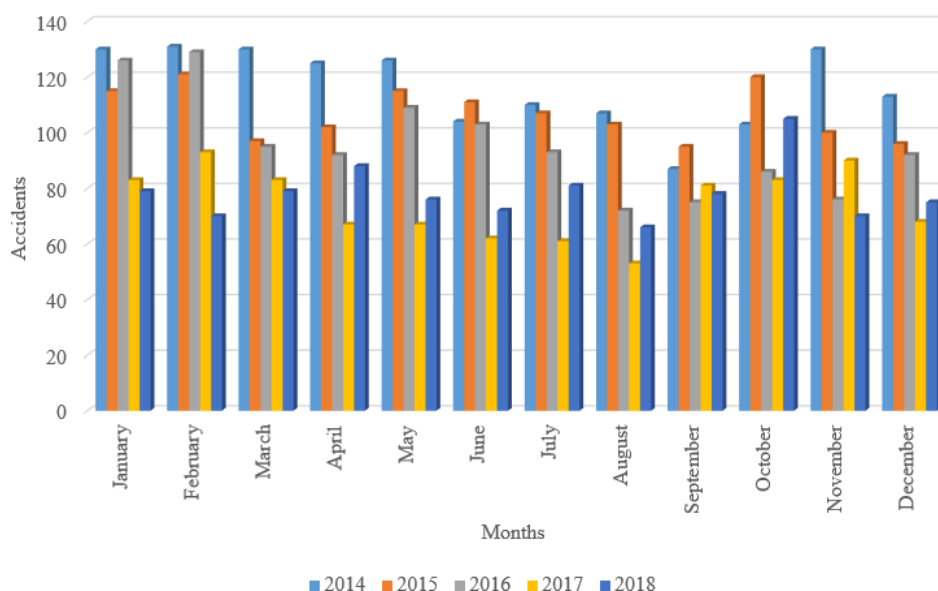


Figure 5: Total number of Accidents on East portion of Indore

3. Conclusion and Probable Solutions

After study, we concluded that Vijay Nagar accounts for higher number of accidents in whole east portion of city. The main reason for higher number of accidents is due to corporate offices, local market i.e., malls, food-stalls, restaurants, hotels etc. As a well-developed and successful area, this area always remains busy as traffic on road is concerned regardless of time[9]. These accidents can be brought down by reducing or resizing Vijay Nagar rotary. In addition to that, traffic signal needs to redesign every yearly basis depending on traffic flow. Accidents related to commercial vehicle

can be brought down by restricting their timings i.e., it should only be allowed in the city after midnight when regular traffic is reduced. In sum, study was performed for specific regions, data was organized in timely & vehicular manner and lastly solutions were provided to reduce accidents for those areas.

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