



“Analysis of Road Accidents under Mix Traffic Conditions - A Case Study of Vadodara City”

DUBEY AKASHKUMAR, M.TECH STUDENT, DEPARTMENT OF CIVIL ENGINEERING, PIET, PARUL UNIVERSITY
ANKITA SHARMA, ASSISTANT PROFESSOR, DEPARTMENT OF CIVIL ENGINEERING, PIET, PARUL UNIVERSITY
DR. JAYESH JUREMALANI, ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING, PIET, PARUL UNIVERSITY
DR. DHARMESH JUREMALANI, PROFESSOR, G.C PATEL INSTITUTE OF ARCHITECTURE, INTERIOR DESIGN AND FINE ARTS, VNSGU-SURAT(GUJARAT)

Abstract: Road crashes are a leading cause of death and serious injuries in both developed and developing countries. This literature review has been carried out to identify the factors that are associated with the severity of road accidents worldwide, as well as the severity of accidents happening during different periods, including vehicle characteristics, crash characteristics, victim characteristics, and roadway features. An attempt is made to analyze road accidents under mix traffic conditions in details for Vadodara city. The factors like age group, time of accidents, area, type of the vehicles, type of accidents, gender etc. for the analysis purpose.

Key words –Traffic Study, Accident Data, Road safety, Preventive measures.

I. INTRODUCTION

With economic prosperity, motorizations are on the rise in developing countries like India. Road traffic deaths in urban India have consistently been a major issue of concern. Road accidents have been one of the greatest health hazards. Accidents are defined as unintended events that result in injury, illness, or material loss. Safety professionals regard accidents and incidents as preventable events that indicate correctable deficiencies in an organization's safety and loss-control system. The accidents on roads are pronounced and disastrous. Road accidents are a negative externality associated with expansion in a road network, motorization, and urbanization in the country. Road traffic injuries are recognized, globally, as a major public health problem, for being one of the leading causes of death.

As per the Road Accident Report for 2019, a total number of 449,002 accidents took place in the country during the calendar year 2019 leading to 151,113 deaths and 451,361 injuries. In percentage terms, the number of accidents decreased by 3.86 % in 2019 over that of the previous year, while the accident related deaths decreased by 0.20 % and the persons injured decreased by 3.86. The decline in road accidents, killings and injury reported during the calendar year 2019 appear to have been a result of the Motor Vehicle Act implemented in States from September 1st 2019 which focused on road safety and included, inter-alia, stiff hike in penalties for traffic violations as well as electronic enforcement.

II. METHODOLOGY:

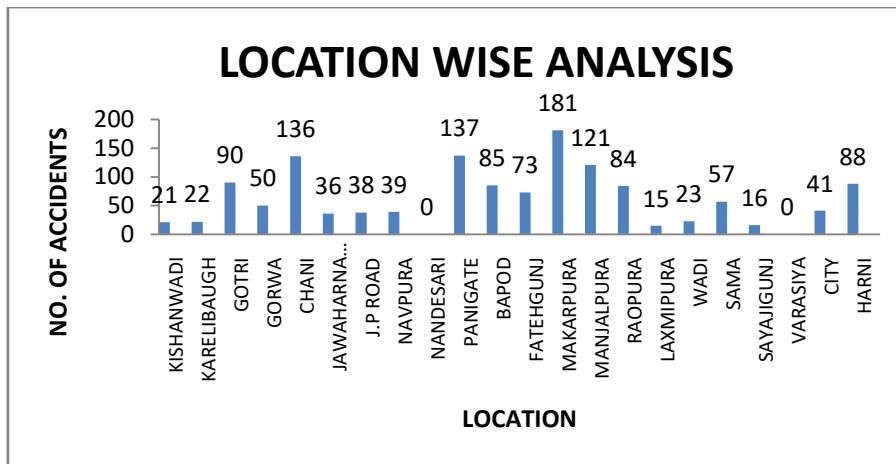
Accidents data were collected from two traffic police stations Vadodara and makarpura. Data has been collected like time of accident, type of accident, driver's age, reason of accident, etc. which is analyzed by SPSS software.

The factor responsible for accidents are analyzed and identified for Vadodara city in general and makarpura area in particular.

III. RESULT AND DISCUSSION:

From the data analysis following result were drawn:

Graph 1. represent that highest number of accidents occurred in Makarpura area while the least at nandesari and varasiya .



Graph 1. Analysis of accidents in Vadodara city.

After analyzing accident data of whole Vadodara city makarpura was selected as study area for further studies.

Chart 1. proves that the number of accidents were maximum in the year of 2016 and 2017.

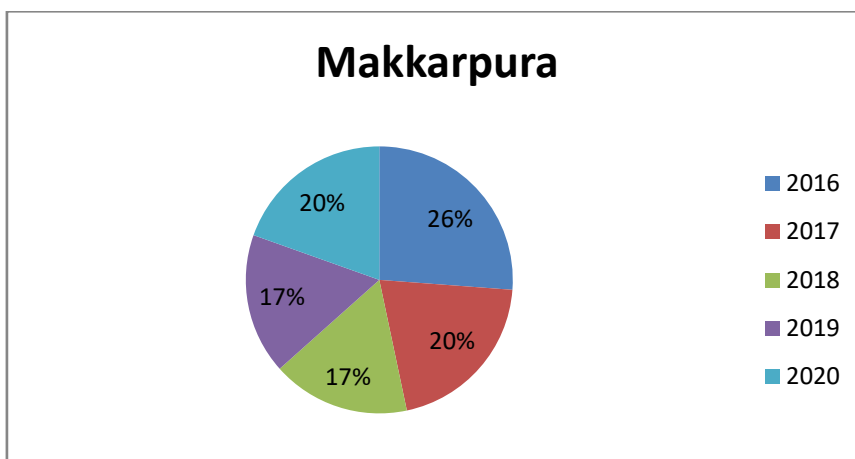
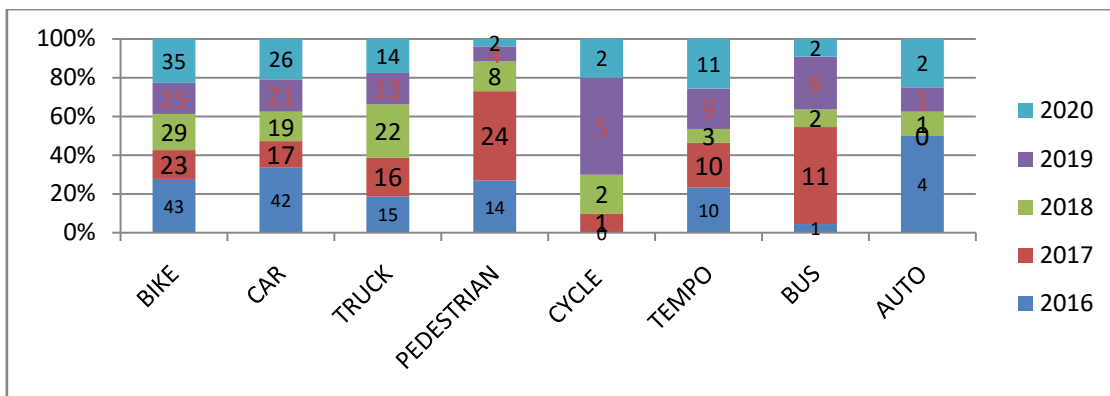


Chart 1. Accidents analysis of Makarpura year wise.

Most vulnerable mode of vehicles are bike and car respectively their percentage is 43% and 42% out of total accidents and graph also shows that in year 2017 accident between pedestrian and bus was more which is shown in graph 2.



Graph 2. Analysis of type of vehicle and pedestrian

Table 1. represent three type of accidents fatal, serious and minor out of which fatal accident is 46.69%, serious accident is 32.49% and minor is 20.82% which shows the highest accidents was fatal in the period of 2016 to 2020 in Makkarpura.

Table 1. Analysis of Accidents According to its type.

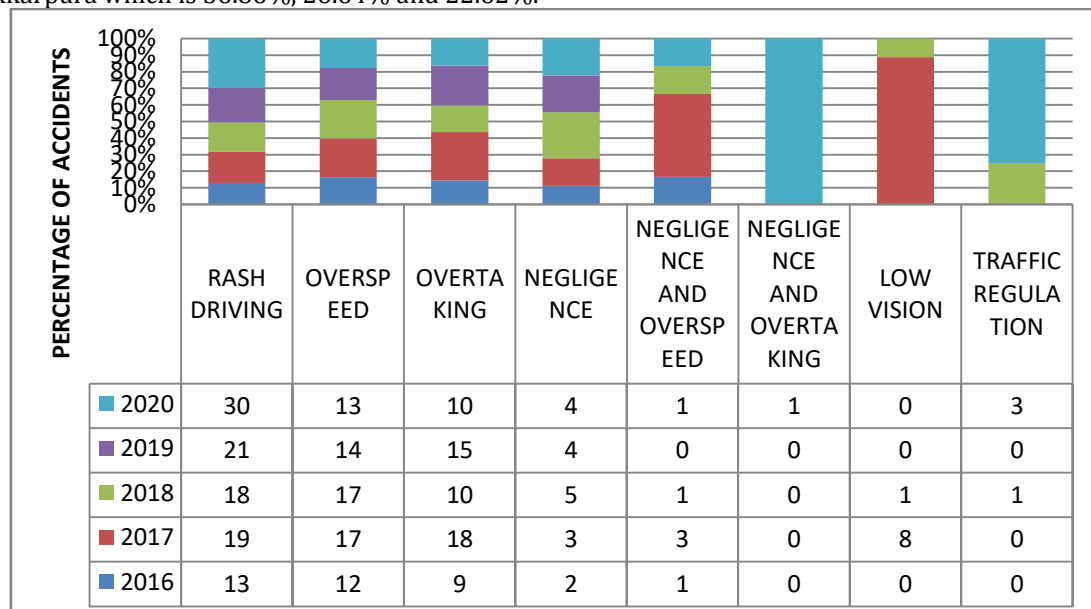
YEAR/TYPE OF ACCIDENTS.	FATAL	SERIOUS	MINOR
2016	46	21	16
2017	38	17	10
2018	26	16	11
2019	21	21	12
2020	17	28	17
TOTAL	148	103	66

According to table 2.the most vulnerable age group is 20 to 30 year old persons. Their involvement in accident is as high as 40%.This is obvious because younger people have tendency to take high risk while maneuvering on the road.

Table 2. Analysis of Accidents According to its type.

YEAR/AGE GROUP	BELOW 20	20-30	31-40	41-50	ABOVE 50
2016	2	44	40	29	7
2017	0	26	37	20	9
2018	0	23	21	22	19
2019	3	25	26	16	2
2020	2	20	22	15	10
TOTAL	7	198	146	102	47

Graph 3. Shows eight different reasons for accidents were found in year 2016 to 2020 out of which rash driving , over speed and overtaking was the most vulnerable reasons for occurring accidents in Makkarpura which is 36.86%, 26.64% and 22.62%.



Graph 3. Analysis of Reason for Accidents.

IV. INFERENCES/RECOMMENDATIONS:

1. Effective in depth traffic training should be provided at school and college level.

2. Strict implementation of traffic rules should be observed by traffic police and violator should be punished.
3. Road safety audit should be made compulsory for new and existing road both.
4. Sufficient visibility and pedestrian infrastructure should be provided specially at over bridge located on ring roads or where highway and urban road meets.
5. Regular maintenance of the road side edge paint and highlight the paint along with that road markings to provide the path to drivers on the period of glare due to vehicles of opposite side to avoid evening and night accidents.
6. Provide delineator and deflector with good quality radium for better visibility at night.

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