

Compilation and Analysis of Accidental FIR Data

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Abstract: This study emphasises the compilation and analysis of accidental FIR data from the year 2019 to the year 2021 at Murthal Police Station in Sonipat District, collected from the Haryana Police website. An accident is a mishap caused mainly by user irresponsibility, which leads to so many injuries and lives lost. The number of accidents, accident-prone locations, causes of accidents, vehicles responsible for accidents, nature of accidents, etc. was identified within the jurisdiction of the selected police station. 175 accidents occurred during the period from the year 2019 to the year 2021. The main accident-prone location found in the study is Murthal Chowk. Overspeeding was the primary cause of 166 of the 175 accidents reported in the FIR. It was found that the nature of many accidents is the head-on collision type. Out of 175, 73 accidents were of the fatal type and 79 were of the grievous type.

Keywords: Accidental FIR; Accident-prone location; Overspeeding; Fatal accident; Cause of accident.

I. INTRODUCTION

Accidents are among the most significant factors influencing the sudden and unexpected death of people and the financial damage to persons and property. The growing number of accidents poses a difficult problem for transportation infrastructure. It is involved not only with health complications, but one with a socioeconomic cost [1]. The objectives of this study are as follows:

- 1) Compilation of Accidental FIR data of 3 years from the year 2019 to the year 2021 at Murthal Police station.
- 2) Analysis of the compiled data.

This study is important to find out the accident scenario of the Murthal and to identify the main causes responsible for accidents and the probable accident-prone locations.

II. LITERATURE SURVEY

Kumar et al (2017). This article describes k-modes grouping and LCC on a traffic accident dataset from Uttarakhand's Haridwar area. This research makes use of 4570 Haridwar district road accident datasets collected by GVKEMRI's emergency transportation service in Dehradun. It demonstrates that such factors that may influence traffic fatalities in one municipality also influence traffic fatalities in neighbouring municipalities [1]. **Mohamed and Radwan (2000).** This article presents accident frequency models as well as accident involvement models for 2 driver demographic characteristics: age and gender. Due to the obvious issues with non-negativity and erroneous terms, the study indicates that the normality assumption, which underpins the traditional multiple linear regression model, must be used with care [2]. **Elena et al (2018).** Forecasting methods for traffic accidents in the Driver-Vehicle-Road-Environment (DVRE) structure have been proposed. The proposed method enabled the assessment of the impact on the accident rate, resulting in an analysis of the efficacy of the suggested action to improve traffic safety [3]. **Kumar et al (2008).** This article revealed that the majority of causalities brought to hospital in South Delhi happen whether on the site or inside 24 hours of the incident, which is quite concerning and emphasises the need for India to immediately take steps to build high response emergency system. This research also concludes that head trauma continues to be among the most frequent and severe types of traumas seen in hospitals [4]. **Ganveer and Tiwari (2005).** According to the findings of this study, the majority of accidents happen to people aged between 18 and 37. As a consequence, the country is suffering double damage. The higher rate of accidents in such age groups can be related to youngsters' risk-taking actions [5].

III. DATA COLLECTION

Accidental FIR data was collected from the website of Haryana Police. The description of collected data is shown in table 1.

Table 1 Description of Data Collected Data

Data Collection Period	3 years (2019 to 2021)
Police Station	Murthal
District	Sonipat
State	Haryana
Heads of Data Collection	Year, month, day, time, victim of vehicle, hitting of vehicle, nature, location, cause, and type

Source- <https://haryanapolice.gov.in/ViewFIR/AccidentalFIRStatusSearch?From=LFhlihX/W49VSIbvdGc4w==>

IV. DATA ANALYSIS

According to fig. 1, the number of accidents in the year 2019 is the highest. Accident in the year 2020 is the lowest due to the coronavirus pandemic. Overall, a total of 175 accidents occurred during the 3 years period.

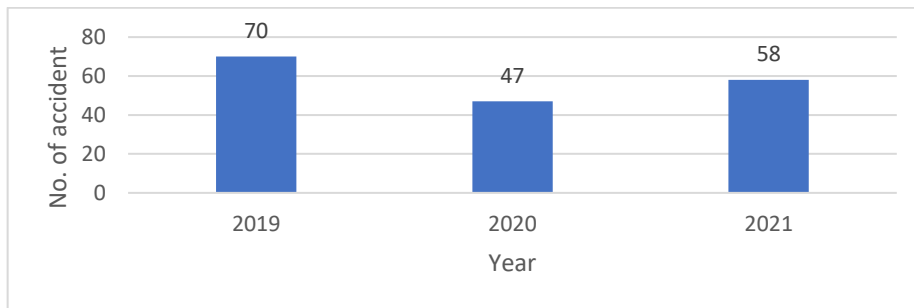


Fig. 1 Year wise distribution of Accidents

Classification of accidents according to the month is shown in fig. 2 and from the fig., it is clear that The month of April had the highest number of accidents and then in October while minimum accidents occurred during May month

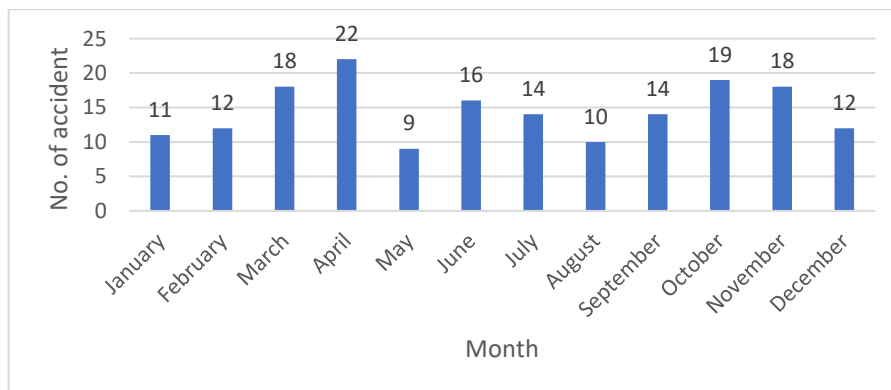


Fig. 2 Month wise distribution of accidents

On Monday, accident numbers are 34 as shown in fig. 3 and the possible reason for this may be that Monday is the first working day and traffic is more comparatively.

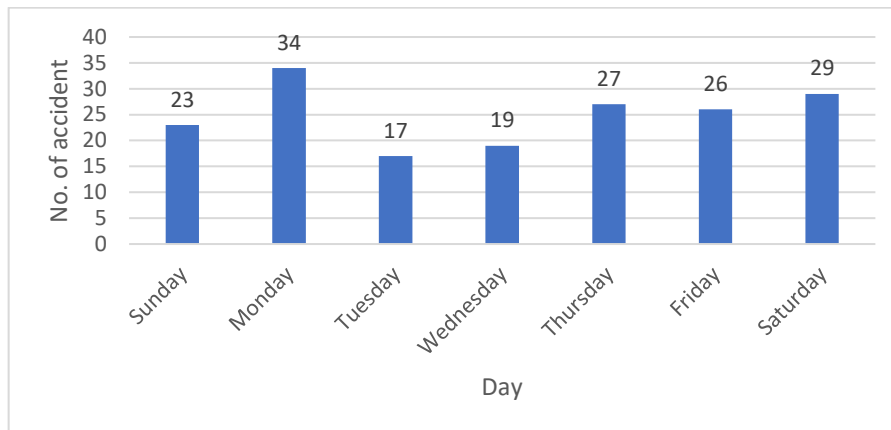


Fig. 3 Day wise distribution of accidents

Time wise classification of accidents is shown in fig. 4. During the evening peak hours, accident numbers are 41 while minimum accidents occurred between 9 PM – 12 PM.

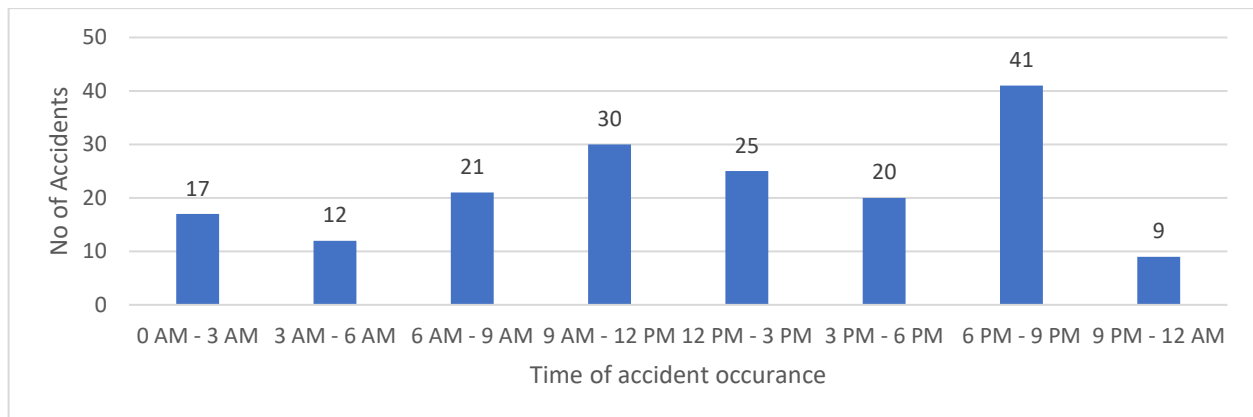


Fig. 4 Time wise distribution of Accidents

Fig. 5 is showing the graph between the number of accidents and victims of vehicles. It is clear that two-wheelers and pedestrians are the most vulnerable.

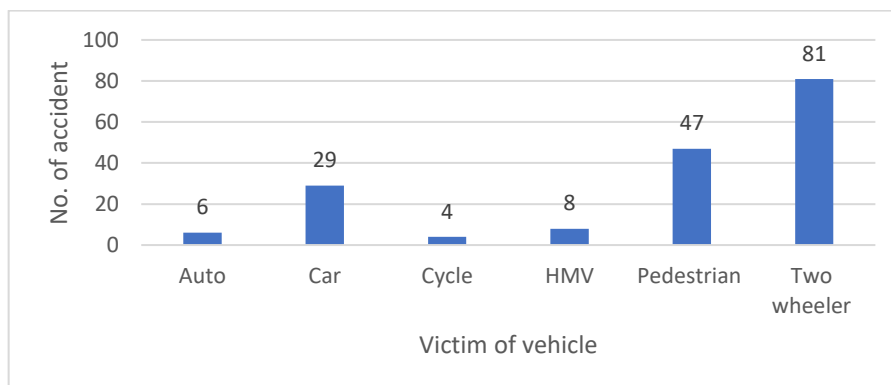


Fig. 5 Number of accidents Vs victims of vehicles

Car and HMV are causing more accidents than other vehicles as shown in fig. 6 (number of accidents vs hitting of vehicles).

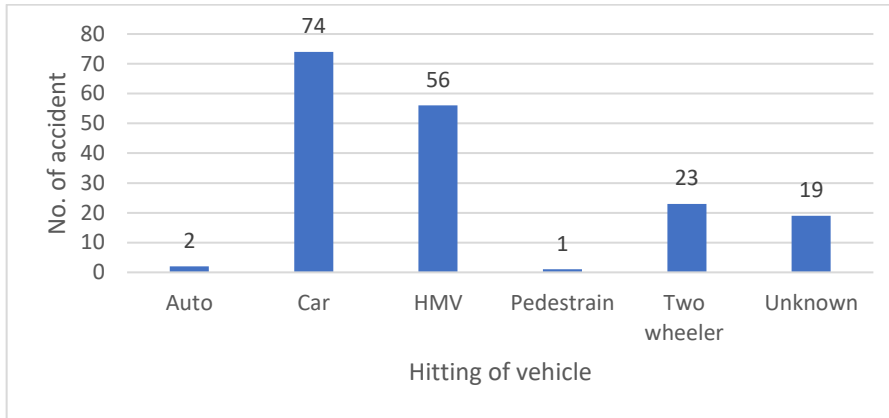


Fig. 6 Number of accidents Vs Hitting of vehicles

Nature wise distribution of accidents is shown in fig. 7. Out of 175 accidents, the nature of 81 accidents is of head on collision type followed by rear end collision.

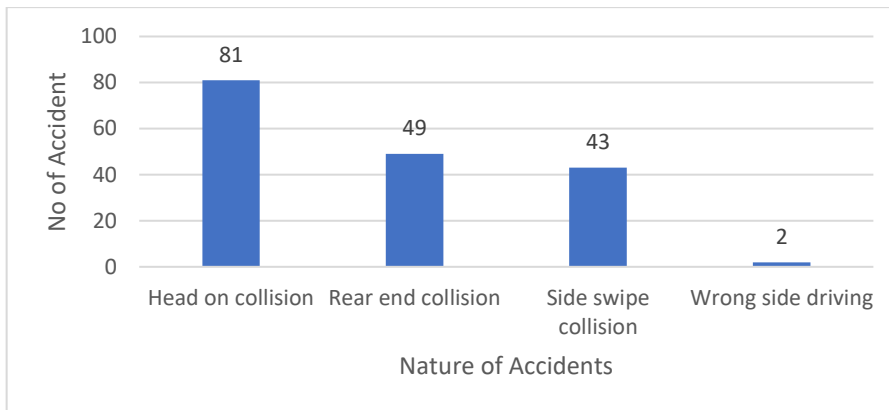


Fig. 7 Nature of accident wise distribution of accidents

Accident prone locations are shown in fig. 8. Murthal is a prime accident-prone location involved in 37 accidents followed by Kumaspur road and Bhigan chowk.

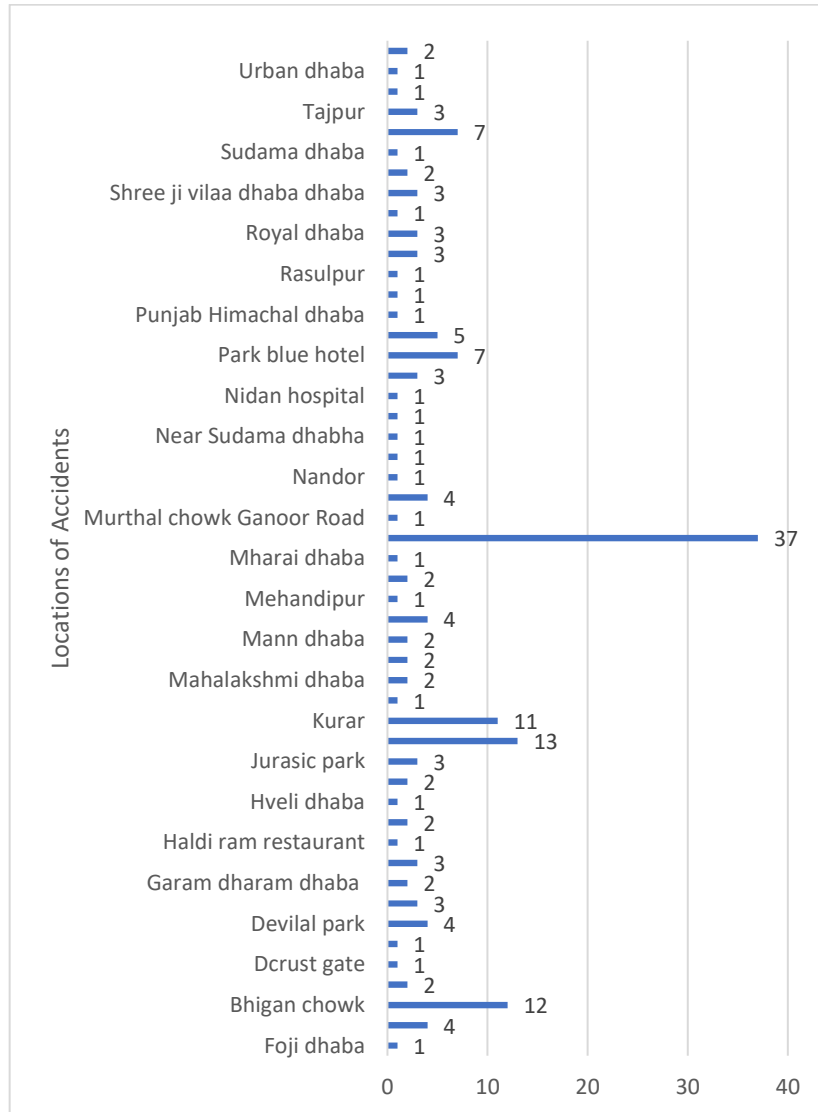


Fig. 8 Location wise classification of accidents

Cause wise distribution of accidents is shown in fig. 9. Overspeeding is the main cause of accidents here as it is involved in 166 accidents.



Fig. 9 Cause wise classification of accidents

Out of 175 accidents that occurred during the 3 years period, 79 accidents are of the grievous type and 73 accidents are of fatal type as shown in fig. 10.

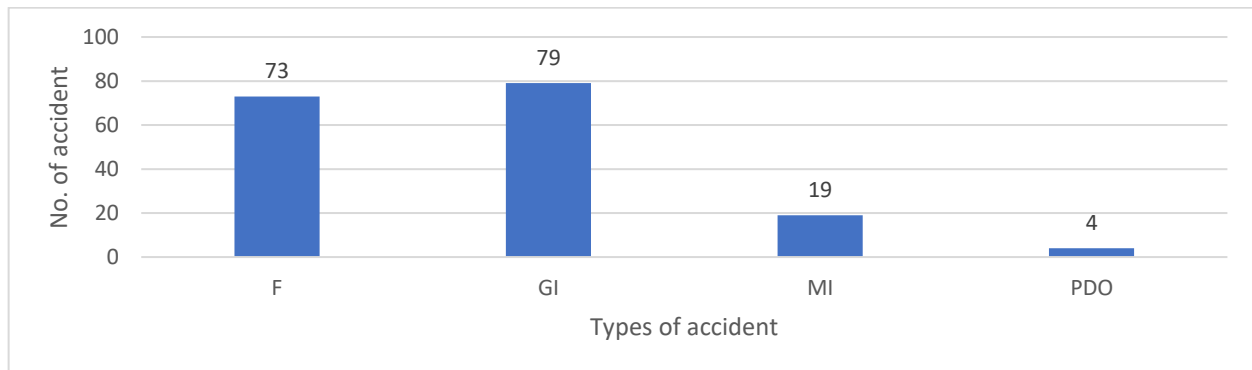


Fig. 10 Number of Accidents Vs Type of accident

V. RESULTS AND DISCUSSION

Every country's societal issue is traffic fatalities. The majority of traffic accidents are caused by driver errors. As a result, its adjustment is critical. To strengthen the existing framework, the nationwide highway security and safety strategy should also include infrastructure spending as well as driver education [6]. Accidental FIR data was collected for the period of three years (the year 2019 to 2021) and analysed in this study. Some main findings of this paper are –

- 1) Out of the total of 175 accidents, 152 accidents are of fatal and grievous types.
- 2) Overspeeding is the main cause of accidents in this area causing 166 accidents as per the FIR reports.
- 3) Murthal chowk is most prone to accidents as FIR data shows that out of 175, 37 accidents occurred at this location only.
- 4) During the evening peak hours, the maximum number of accidents occurred i.e., 41.
- 5) Cars and HMTVs are the main hitting vehicles while pedestrians and two wheelers are most vulnerable.
- 6) In the month of April, the maximum number of accidents occurred.

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