

Road Safety in Victoria Data Analysis Summary

Purpose Statement:

Identify the attributes responsible for death and accident rate in Victoria from road safety dataset.

Data Transformation:

The road accident data, which has been used for this analysis was mostly clean, however only few attributes have null values. In addition, for some of the attributes, the data type was incorrect like number of persons killed, persons injured, persons involved, severity etc.

Data Analysis:

To start the data analysis, I have built hypothesis, which are mentioned in the presentation slide. The analysis part started with quantitative analysis like finding descriptive statistics and correlation between all the variables. However, persons killed, and persons injured remain the primary focus of the analysis, where I found that they have positive correlation to speed zone and number of vehicles.

In the second part of data analysis, which is qualitative research, I opted for thematic analysis, which is mainly about exploring variables to spot patterns. I began visualizing attributes from "Regions", although, southeast and northwest regions are the riskiest in terms of people getting in accidents and even get killed but, when I combined the regions with speed zones, I realized that most accidents and deaths occur in the 50-70KMH speed zone in southeast and northwest regions. However, 100KMH zone seems most dangerous in all the other regions and responsible for highest death tolls.

Further, by adding "Light condition" to the existing visual, "Daylight" remains the top on the list for all the regions followed by "Dark with streetlight on" for SE and NW regions for all the accidents including death in accidents. However, in all the other regions, second most common "Light condition" is "Dark with no streetlight" particularly for accidents where people got killed.

To understand the cause of the accidents, I added the attribute "Accident Description" to the above graph, and for all the regions except SE and NW, the most common causes of all the accidents are "Collision with vehicle" and "Collision with objects", whereas In SE and NW occurrence of pedestrian deaths contribute significantly in addition to the above causes.

Conclusion:

To summarize, the following measures can be taken to improve road safety and prevent accidents in general:

1. LGA's including Geelong, Mornington Peninsula, Bendigo, Yarra Ranges Brim Bank and Kingston claimed 62 deaths overall due to collision with vehicles, whereas East Gippsland, Cardinia, and Geelong recorded 32 deaths in 2 years' time, being the top spot for promoting collision avoidance technology.
2. Install streetlights in 100KMH speed zone in Wellington, Pyrenees, Campaspe, Moira, and Geelong in east, west, north, northeast, and southwest respectively, which accounted for 25 deaths all together.
3. Improve pedestrian crossing in Brim bank and Melbourne in NW region and Casey and Whitehorse in SE region, which reported 21 deaths in 2 years' time.