

MARYLAND ACCIDENTS DATA ANALYSIS - TEAM INSPIRONS

Maryland has seen a rise in the number of accidents occurring year after year. To perform analysis to know the reasons for the cause of the accidents and the various other reasons which are associated with the mishap, 3 different data sets (Vehicle crashes, Personal details, and Vehicle details) have been downloaded from the Maryland government Open Data Portal. The initial analysis showed that the number of accidents that occurred in the year 2020 is about 412,289 whereas in the year 2021 till the month of September it has been found to be 346,477. This information shows that there is a chance for an increase in the number of accidents that can happen in the year 2021.

Based on the initial visualization most of the accidents have caused Property damage and the least being the fatal crashes. From the accidents data, it can be inferred that most of the accidents happened in Prince George's county. In comparison to Baltimore City County which is a more happening county than Prince George County which is more of an educational hub has a history of most accidents that occurred in Maryland state. It could be inferred from the average speed of a vehicle involved in an accident plot that even though Howard County has a higher avg speed of a vehicle involved in an accident, the number of accidents is comparatively lower than Prince George and Baltimore City counties. Thus the speed of the vehicle may not be one of the major reasons for the higher accident rate in Prince George County.

Analyzing both the years individually (2020 and 2021), the surface condition of the road has also been found as one of the main reasons for the cause of accidents. In the year 2020, it has been found out that most of the accidents occurred on roads that were Dry followed by roads in Wet condition. There is a huge difference of 223,611 between accidents that happened in Dry conditions and Wet conditions. Similarly in the year 2021, we have got similar results with the no of accidents happening in dry conditions being the highest. Comparing the results obtained we can get to know that the road condition may not be one of the main reasons for the cause of the accident even though we can't rule out this reason completely.

Weather conditions may also be one of the reasons for the cause of the accident. In the year 2020, roughly, the number of accidents that occurred during the time it was raining is nearly 55k. Similarly, even in the year 2021, the number of accidents that happened in a similar weather condition is nearly 34k. So when we consider accidents based on both road conditions and weather conditions it can be found out that rainy weather is not the ultimate cause for the accidents to occur.

From the analysis of accidents which happened in various seasons in the year 2020, it has been found out that most of the accidents occurred during Summer and it has been found out from the records that male drivers were involved more in such accidents which happened during that season, followed by accidents which happened during Fall season involving male drivers the most in this case. Whereas female drivers were involved in lesser accidents accounting for 44k accidents in Summer and Winter separately. Likewise, in the year 2021, it has been observed that the highest accidents occurred during summer and spring respectively again by male drivers accounting for 130k accidents of the total number which occurred during that year.

It has been found out that most of the accidents occurred during daylight as compared to the other lighting conditions in the year 2020. Accidents in this lighting condition mostly occurred during the Summer season while the number of accidents is almost similar during Winter, Fall, and Spring. The total number of accidents during Daylight conditions is nearly 2.5 million. In 2021 Daylight accidents are the highest especially during the Summer and Spring seasons which nearly have the same number of accidents in both seasons which lie between 90-91k respectively.

So in conclusion, there are various reasons for the accidents to occur and the various scenarios for the same have been discussed above. The speed of the vehicle or the weather condition or the environmental condition or the road type may be some of the causes for the accidents to occur.