# **CHAPTER FOUR**

# **DATA ANALYSIS AND RESULTS**

This chapter presents the analysis ad results of the data collected for the study. It starts with the descriptive relating to the demographics of the persons involved in road crashes over the period, types of vehicles involved, locations and crash-type, weather and ligh conditions and drivers’ errors resulting to the crash. The chapter ends with an association test to ascertain the relationship the accident severity and the underling condition that gives rise to it.

* 1. **Fatalities and Casualties by sex**

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|  |
|  |

Figure : Fatalities and Casualties by sex

**4.2 Fatalities and Casualties by Age Group**

Figure 2

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|  |

Figure : Fatalities and Casualties by Age Group

**Fatalities and Casualties Road Environment**

Figure 3

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|  |
|  |

Figure : Fatalities and Casualties Road Environment

Figure : Vehicle Type Involved in Crashes

**Location of Crashes Resulting in Deaths and Injuries**

Figure 5

**Collision Type Resulting in Deaths and Injuries**

Figure 6

**Weather Conditions Prevailing during Crashes**

Figure 7

**Light Conditions Prevailing during Crashes**

Figure 8

**Day of Occurrence of Crashes**

Figure 9

**Hour of Occurrence of Crashes**

Figure 10

**Driver Error Associated with Deaths and Injuries**

Figure 11

**Chi-square Test of Independence**

Table 1

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | |
| Factors Affecting Road Crash Casualties | | | | | | | |  | |  | |  | |  | |
|  |  | |  | |  |  |  | |  | |  | |  | |  |
|  |  | | **Persons Killed** | | *Percentage* | **Persons Injured** | *Percentage* | |  | | *Chi-square* | | *df* | | *P-value* |
| **Light Condition** | Day | | 5703 | | 58.2 | 37427 | 66.4 | |  | | *309.06* | | *3* | | *2.2E-16\** |
|  | Night no Street Light | | 1088 | | 11.1 | 4588 | 8.1 | |  | |  | |  | |  |
|  | Night Street Light off | | 295 | | 3.0 | 924 | 1.6 | |  | |  | |  | |  |
|  | Night Street Light on | | 2716 | | 27.7 | 13418 | 23.8 | |  | |  | |  | |  |
|  | ***Total*** | | ***9802*** | |  | ***56357*** |  | |  | |  | |  | |  |
|  |  | |  | |  |  |  | |  | |  | |  | |  |
| ***Weather*** | Clear | | 7480 | | 76.3 | 46563 | 82.6 | |  | | *272.70* | | *3* | | *2.20E-16\** |
|  | Fog | | 372 | | 3.8 | 1471 | 2.6 | |  | |  | |  | |  |
|  | Rain | | 50 | | 0.5 | 515 | 0.9 | |  | |  | |  | |  |
|  | Other | | 1900 | | 19.4 | 7808 | 13.9 | |  | |  | |  | |  |
|  | ***Total*** | | ***9802*** | |  | ***56357*** |  | |  | |  | |  | |  |
|  |  | |  | |  |  |  | |  | |  | |  | |  |
| ***Days*** | Monday | | 1399 | | 14.3 | 8244 | 14.6 | |  | | *15.45* | | *6* | | *1.79355E-05\** |
|  | Tuesday | | 1190 | | 12.1 | 7277 | 12.9 | |  | |  | |  | |  |
|  | Wednesday | | 1254 | | 12.8 | 6766 | 12.0 | |  | |  | |  | |  |
|  | Thursday | | 1281 | | 13.1 | 7745 | 13.7 | |  | |  | |  | |  |
|  | Friday | | 1528 | | 15.6 | 8408 | 14.9 | |  | |  | |  | |  |
|  | Saturday | | 1665 | | 17.0 | 9641 | 17.1 | |  | |  | |  | |  |
|  | Sunday | | 1485 | | 15.1 | 8276 | 14.7 | |  | |  | |  | |  |
|  | ***Total*** | | ***9802*** | |  | ***56357*** |  | |  | |  | |  | |  |
|  |  | |  | |  |  |  | |  | |  | |  | |  |
| ***Hour of Occurrence***  ***of Crashes*** | 00-02am | | 260 | | 2.8 | 1061 | 1.9 | |  | | *309.62* | | *11* | | *2.20E-16\** |
|  | 02-04am | | 247 | | 2.6 | 1128 | 2.1 | |  | |  | |  | |  |
|  | 04-06am | | 512 | | 5.4 | 2502 | 4.6 | |  | |  | |  | |  |
|  | 06-08am | | 598 | | 6.3 | 3818 | 7.0 | |  | |  | |  | |  |
|  | 08-10am | | 733 | | 7.8 | 5110 | 9.4 | |  | |  | |  | |  |
|  | 10-12noon | | 775 | | 8.2 | 5490 | 10.1 | |  | |  | |  | |  |
|  | 12-2pm | | 847 | | 9.0 | 5653 | 10.4 | |  | |  | |  | |  |
|  | 2-4pm | | 1114 | | 11.8 | 7670 | 14.1 | |  | |  | |  | |  |
|  | 4-6pm | | 1307 | | 13.8 | 8267 | 15.2 | |  | |  | |  | |  |
|  | 6-8pm | | 1710 | | 18.1 | 7777 | 14.3 | |  | |  | |  | |  |
|  | 8-10pm | | 865 | | 9.2 | 4044 | 7.4 | |  | |  | |  | |  |
|  | 10-12midnight | | 477 | | 5.1 | 2020 | 3.7 | |  | |  | |  | |  |
|  | ***Total*** | | ***9445*** | |  | ***54540*** |  | |  | |  | |  | |  |
|  |  | |  | |  |  |  | |  | |  | |  | |  |
| ***Location*** | Not at Junction | | 8613 | | 87.9 | 46904 | 83.2 | |  | | *181.45* | | *7* | | *2.20E-16\** |
|  | Cross Junction | | 216 | | 2.2 | 2054 | 3.6 | |  | |  | |  | |  |
|  | T - Junction | | 768 | | 7.8 | 5867 | 10.4 | |  | |  | |  | |  |
|  | Stag X | | 50 | | 0.5 | 447 | 0.8 | |  | |  | |  | |  |
|  | Y - Junction | | 15 | | 0.2 | 173 | 0.3 | |  | |  | |  | |  |
|  | Roundabout | | 42 | | 0.4 | 532 | 0.9 | |  | |  | |  | |  |
|  | Railway | | 6 | | 0.1 | 19 | 0.0 | |  | |  | |  | |  |
|  | other | | 92 | | 0.9 | 359 | 0.6 | |  | |  | |  | |  |
|  | ***Total*** | | ***9802*** | |  | ***56355*** |  | |  | |  | |  | |  |
|  |  | |  | |  |  |  | |  | |  | |  | |  |
| ***Collision Type*** | Head -On | | 2735 | | 23.0 | 10203 | 18.1 | |  | | *3192.90* | | *10* | | *2.20E-16\** |
|  | Rear end | | 1142 | | 9.6 | 9477 | 16.8 | |  | |  | |  | |  |
|  | 90 Degrees | | 285 | | 2.4 | 2782 | 4.9 | |  | |  | |  | |  |
|  | Side Swipe | | 454 | | 3.8 | 5147 | 9.1 | |  | |  | |  | |  |
|  | Ran off Road | | 1854 | | 15.6 | 14107 | 25.0 | |  | |  | |  | |  |
|  | Object on Road | | 41 | | 0.3 | 328 | 0.6 | |  | |  | |  | |  |
|  | Object off Road | | 216 | | 1.8 | 1393 | 2.5 | |  | |  | |  | |  |
|  | Parked Vehicle | | 337 | | 2.8 | 1514 | 2.7 | |  | |  | |  | |  |
|  | Pedestrian | | 4588 | | 38.6 | 11150 | 19.8 | |  | |  | |  | |  |
|  | Hit Animal | | 13 | | 0.1 | 71 | 0.1 | |  | |  | |  | |  |
|  | Other | | 210 | | 1.8 | 185 | 0.3 | |  | |  | |  | |  |
|  | ***Total*** | | ***11875*** | |  | ***56357*** |  | |  | |  | |  | |  |
|  |  | |  | |  |  |  | |  | |  | |  | |  |
| ***Driver Error*** | None | | 1455 | | 14.8 | 11582 | 20.6 | |  | | *1038.00* | | *10* | | *2.20E-16\** |
|  | Inexperience | | 272 | | 2.8 | 1553 | 2.8 | |  | |  | |  | |  |
|  | Inattentive | | 4023 | | 41.0 | 23589 | 41.9 | |  | |  | |  | |  |
|  | Too Fast | | 2528 | | 25.8 | 11697 | 20.8 | |  | |  | |  | |  |
|  | Too Close | | 116 | | 1.2 | 1075 | 1.9 | |  | |  | |  | |  |
|  | No Signal | | 17 | | 0.2 | 183 | 0.3 | |  | |  | |  | |  |
|  | Improper Overtaking | | 347 | | 3.5 | 1553 | 2.8 | |  | |  | |  | |  |
|  | Improper Turning | | 50 | | 0.5 | 311 | 0.6 | |  | |  | |  | |  |
|  | Fatigued/Asleep | | 27 | | 0.3 | 217 | 0.4 | |  | |  | |  | |  |
|  | Other + Lost Control | | 541 | | 5.5 | 4096 | 7.3 | |  | |  | |  | |  |
|  | Unknown | | 426 | | 4.3 | 501 | 0.9 | |  | |  | |  | |  |
|  | ***Total*** | | ***9802*** | |  | ***56357*** |  | |  | |  | |  | |  |

Table : Chi-square Test of Independence