

THE IMPACT OF DRIVER'S BEHAVIOR IN ROAD TRAFFIC ACCIDENT

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ABSTRACT

In India, with reference to Urban roads, the task of ensuring safe traffic is difficult due to the combination of slow and fast moving vehicles, sharing the same carriage way. In general, accidents are found to be due to carelessness, thoughtlessness, over confidence and not due to ignorance. Various factors like human, vehicle and environment factors play a major roles in road traffic accident (Haddon, 1974). In India scenario of mixed traffic comprising bicycles, tricycles, animal-drawn carts, and motor vehicles of various sizes, shapes and speeds, without adopting traffic segregation measures are found. WHO 2018 reports has revealed the fact that India had only 1% of world's motor vehicle population but accounts for 6% of road accidents. In 2018, India reported 73% of total deaths which occurred due to road accidents in entire south Asian region. Further, Road accidents were found to be the ninth most common cause for premature deaths and tenth most common cause for disability. There are various reasons which contributed towards road traffic accidents. Among different factors, human factors plays a significant role which includes drunken drivers, usage of mobile phone, distraction and not following traffic laws. This paper will focus on the behavioural issues in road traffic accidents in Chennai.

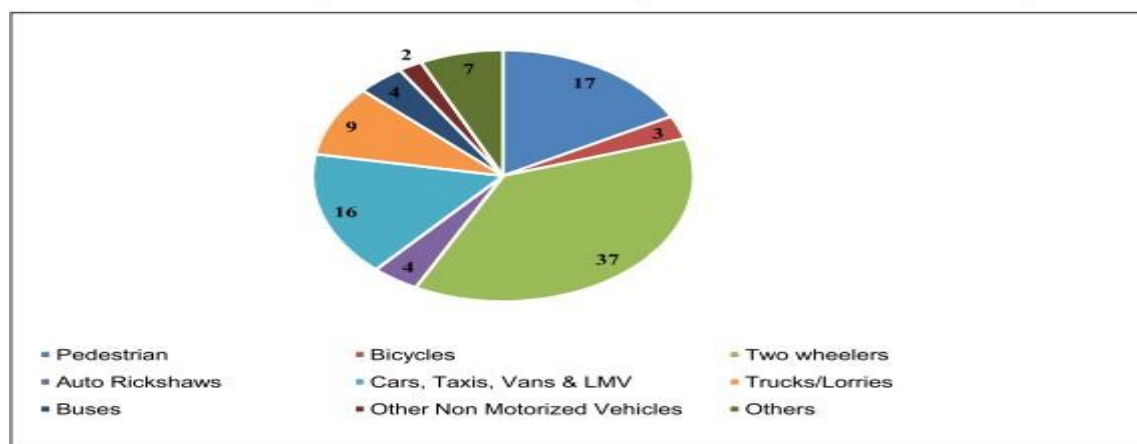
Keywords: Exaggerated safety behavior, anxiety behavior, Error, Lapses, violations

I INTRODUCTION

Road traffic accidents are a big public health concern that is expected to worsen if they are not appropriately addressed. Road traffic accidents is a major issue which is a key concern for more than four decades across different countries. In 1962, WHO report highlighted various reasons of road traffic accident. Road traffic accidents were recognised a major public health hazard by the World Health Assembly (WHA) 27.59 in 1974. The World Bank has urged all the countries to integrate road safety modules in urban transportation projects for the past two decades. RTA is serious but under-appreciated Universal health issue that necessitates measures to prevent them in an efficient, effective, and long-term manner. Every year 1.2 million people die worldwide with 50 million people get injured in road accidents. Currently, the bulk of such deaths occur among "vulnerable road users." In 2017, the automotive sector in the south Asian country surpassed that of the United States to become the world's fourth largest. In India, there were approximately 449

thousand traffic accidents in 2019. In 2019, national highways recorded 30.55%, state highways recorded 24.27% and other roads recorded 95% of accidents. Other roads contributed 38.89% deaths and 44.75% injuries. In 2019, two-wheelers killed almost 37% of those killed (Refer Fig. 1.1). Minor injuries accounted for around 35% of all injuries, followed by fatal accidents, which accounted for approximately 31%, and grievous injuries, which accounted for another 28%.

Fig. 1.1: Number of persons died in 2019 due to RTA



II Review of Literature

- James (2011) looked into whether this distinction for self-reported driver behaviour was justifiable. A driver behaviour questionnaire (DBQ) was completed by 520 drivers, who were asked to rate the frequency with which they made various sorts of errors and violations while driving. Violations, severe errors, and somewhat innocuous slips were found as three pretty strong causes. The data revealed that violations decreased as people become older, while errors committed did not decrease. Male recorded more violations than Female. Overspeeding, right-of-way violations, drunken driving, red-light violations, distraction and exhaustion, and illegal overtaking are the most common cases of illegal driver behaviour. It is obvious that human variables have a part in road accidents, but distraction and weariness appear to have an impact on driving skill and behaviour (Dobbeleer et al 2009).
- Sabbour and Ibrahim (2010) have observed that driving styles, excessive speed, ignoring road signs, driving opposite direction, risky conditions and fast driving are significantly associated with male drivers.
- Goodwin et al. (2006) have identified that behavioural factors are responsible to increase road accidents. These factors reduce capabilities of drivers on long term basis such as inexperience, aging, disease, disability and alcoholism that result into increasing road accidents.
- Bener et al. (2005) have identified that careless driving is one of the most contributing factors in road traffic accidents. 35 percent road accidents occur due to careless driving. Excessive speed is the second factor in road accident after careless driving.

- Clarke et al. (2002) have found that poor driving skills and lack of knowledge of traffic laws are identified as the causes of fatal accidents. Rebellious attitudes and decision-making skills of young drivers' are contributory factors of road accidents.
- Wood (2002) has found that most of road accidents occur due to fault of drivers. Drivers are unable to recognize hazard situation such as flooded roads and hanging wires on road. Many factors have been included in road safety to minimize the risk, such as handling of vehicle, adequate training and education for safe driving and maintenance of the vehicle. Majority of road accidents are caused by driver error. Drivers are unable to notice hazards such as flooded roads and strewn cables across the road.
- Grantham (2000) found that excessive speed affects drivers' performance. Speeding diminishes a motorist's ability to manage bends or road obstructions. Speeding is the leading causes of traffic accidents and fatalities. The major strategy for controlling vehicle operating speed has been discovered to be speed restrictions, yet speed restrictions are not successful in all driving scenarios. Speed is positively associated to income, miles, and age, but adversely associated to motor vehicle registration and speed limits.
- According to Forester et al. (1984). Road traffic accidents are found to be strongly linked to age and speed.
 - According to Lawton et al. (1997), there is a considerable difference between ordinary and purposeful infractions. Ordinary offences include things like speeding and running red lights, whereas purposeful infractions include things like honking too loudly or aggressively following another vehicle.
- According to Assum (1997), there is a considerable difference in drivers' attitudes about traffic safety and speeding.

III Research Methodology.

The study is designed to understand the role of driver's behavior in road traffic accidents in Chennai city. Descriptive research design is employed in the present study. According to Report of state transport department report, Tamil Nadu is topping the road accidents (1300) RTA 9% increase in 2017; Total number of two wheeler vehicle population in TN is 42,54,811. According to Ministry of Road transport & Highways annual report 2019, Tamilnadu ranks 1st in 2019 in terms of accidents despite a reduction of 10.5% over the previous year (Refer Table 3,4). Hence, Tamilnadu was taken as Population for this study to understand the role of drivers behavior in road traffic accidents in Tamilnadu. The researcher has used quota sampling under Non-Probability technique. Here, the researcher selected 1000 samples that represented male two wheeler driving population in the age group of 15-49 from 15 zones of Chennai City.

Objectives of the Study

1. To understand the Exaggerated safety behavior, anxiety based performance index, Hostile or Aggressive Behavior, violations, errors and lapses of two wheeler drivers in Urban Chennai city.

HYPOTHESIS

1. Higher the behavior deviation, Higher the Road traffic accidents.

IV. Results and Discussion

The major cause for the accidents occurred is on account of fault on the driver which stood 97.22 percent. Drunken driving, over speed, rash driving, usage of mobile phone etc., are the causes of concern. The majority accidents constituted 22 percent in Tamil Nadu were occurred in the evening from 6.00 pm to 9.00 pm as the people of all walks of life are returning home from their work spot. Another 18 percent of the accidents were happening during the hour 3.00 pm to 6.00 pm. The majority accidents were recorded in Chennai city followed by Coimbatore, Villupuram, Salem, and Cuddalore. Major fatal death was registered in Chennai city followed by Coimbatore, Kanchipuram, Villupuram, Salem and Tiruppur. This section examine the driving behavior pattern of two wheeler drivers highlighting the caution behavior, anxiety behavior, hostile behavior, violations, errors and lapses done by them.

Table 1.1 Descriptive Statistics of Respondents towards ESCB

S.No.	Driving Behaviour Statements	Mean	Std. Deviation
Exaggerated safety or caution behaviour (ESCB)			
1.	I lose track of where I'm going	2.89	1.334
2.	I have trouble staying in the correct lane	2.92	1.377
3.	I drift into other lanes	2.41	1.031
4.	I forget to make appropriate adjustments in speed	3.11	1.200
5.	I forget where I am driving to	2.81	1.498
6.	I have trouble finding the correct lane	2.76	1.633
7.	I have difficulty in merging into traffic	2.88	1.244

Source: Computed Data

Exaggerated safety or caution behaviour (ESCB)

From the descriptive analysis it is found that most of the drivers forget to make appropriate adjustments in speed as the Mean value is 3.11, S.D is 1.200 which supports the Global Status Report (2009). It is revealed that the higher the average speed increases, higher the possibility of accidents.

Table 1.2 Descriptive Statistics of Respondents towards ABPD

S.No.	Driving Behaviour Statements	Mean	S.D
Anxiety based performance index (ABPD)			
1.	I slow down when approaching intersections even when the light is green	2.81	1.185
2.	I maintain a large distance between myself and the driver in front of me	2.24	1.258
3.	I try to put distance between myself and other vehicle	2.95	1.431

4.	I maintain my speed in order to calm myself down	2.77	1.387
5.	I try to stay away from other vehicles	2.63	1.126
6.	I decrease my speed until I feel comfortable	3.21	1.242
7.	During bad weather, I drive more cautiously than other vehicles on the road	3.68	1.466

Source: Computed Data

Teye-Kwadjo (2011) has found that road drivers' behaviour and motor vehicles are influenced by key factors such as physical and social environments which supports the findings of this study as majority of the drivers drive more cautiously on the road during bad weather as the Mean score is 3.68, S.D=1.466.

Table 1.3 Descriptive Statistics of Respondents towards HAB

Hostile or Aggressive Behaviour (HAB)			
S.No.	Driving Behaviour Statements	Mean	S.D
1.	I yell at the driver/drivers who made me nervous	2.43	1.087
2.	I let the driver who made me nervous know that I am upset	2.41	1.327
3.	I make gestures at the driver/drivers who made me nervous	2.87	1.278
4.	I hit on the steering wheel when I am nervous	2.42	1.382
5.	I honk my horn at the driver who made me nervous	2.60	1.160
6.	I try to find ways to let other drivers know that they are making me nervous	2.64	1.356
7.	I use bad language while I am driving	2.34	1.418

Source: Computed Data

The investigations revealed that two wheeler drivers make more gestures at the driver/drivers who made them nervous as it is exhibited as highest Mean score 2.87, S.D = 1.278.

Table 1.4 Descriptive Statistics of Respondents towards violation

Violations			
S.No.	Driving Behaviour Statements	Mean	S.D
1.	I always drive close to the vehicle in front, as a signal for that driver to go faster or get out of my way	1.35	.962
2.	I Deliberately disregard the speed limits late at night or very early in the morning	1.24	1.038
3.	I Get involved in unofficial races with other drivers	0.89	1.057

Source: Computed Data

It is found that two wheeler drivers always drive close to the vehicle in front, as Mean = 1.35, S.D= 0.962 which supports the previous research study by Stradling (2000) which revealed that violation has a huge impact on accidents.

Table 1.5 Descriptive Statistics of Respondents towards Error

S.No.	Driving Behaviour Statements	Mean	S.D
1.	I always turn right on to a main road into the path of an oncoming vehicle that I had not seen or whose speed had misjudged	1.37	.951
2.	I Fail to notice, because I lost in thought or distracted, someone waiting at a zebra crossing, or that a pelican crossing light has just turned red	1.53	1.122
3.	I always Misjudge the speed of a moving vehicle when overtaking	1.85	1.102

Source: Computed Data

In this study, it is found that two wheeler drivers always misjudge the speed of a moving vehicle when overtaking (Mean 1.85, S.D=1.10). Thus, violations and errors are potentially dangerous, and they have been reported to predict active accident involvement, though violations have primarily been linked to crash involvement. (Parker et al, 2000).

Table 1.5 Descriptive Statistics of Respondents towards Lapses

S.No.	Driving Behaviour Statements	Mean	S.D
1.	I Forget where I left my vehicle in parking area	0.89	1.081
2.	I always Get into the wrong lane at a roundabout or approaching a road junction	1.38	0.955
3.	I fail to read the signs correctly, and exit from a roundabout on the wrong road	1.37	1.030

Source: Computed Data

Among the 'lapse' category, it is found that two wheeler drivers always Get into the wrong lane at a roundabout or approaching a road Junction as Mean =1.38, S.D =0.955.

CONCLUSION

Descriptive analysis on the driving behavior revealed high mean scores is found from anxiety based behavior. The present study findings is in support of previous research findings by Hussain et al (2006) which revealed that speed is the primary cause of accidents. Every year, a considerable number of individuals are killed in road accidents, and some of them suffer life-threatening conditions such as mental illness, financial loss, and the loss of a hand or leg. Road users in India, both two-wheelers are quite numerous. Hence, the general public must be aware of the importance of road safety. It can be accomplished by implementing road safety education initiatives.

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