

**A STUDY TO UNDERSTAND THE TRAFFIC BEHAVIOR OF THE PEOPLE  
AND THEIR UNDERLYING ATTITUDE TOWARDS SAFE DRIVING AND  
TRAFFIC RULES**

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**ABSTRACT**

It has been largely observed that people riding vehicles on the road generally lack traffic sense in most of the cities in India. Everyone, irrespective of the type of vehicles, wants to be the first one reaching their respective destinations. Hence they end driving fast, overtaking wrongly, blowing horn unnecessarily, without caring about the others on the road. Driving with a care for others on the road definitely makes the ride a peaceful and safe one for driver and for others as well. The literature review indicates that people's attitude towards the traffic rules and regulations have been largely responsible for unsafe driving. Several measures have been taken by the government authority such as conducting awareness campaigns, educating people and even the punishment to promote safe driving behavior. However these efforts seem to have created negligible impact on the behavior of the people. This study is an attempt to understand the attitude of the people towards safe driving and traffic rules.

**Key words:** Traffic behavior, Attitude toward safe driving, Traffic sense

**I. INTRODUCTION: TRAFFIC SCENARIO IN INDIA**

In a dubious distinction for the country, the World Health Organization has revealed in its first ever Global Status Report on Road Safety that more people die in road accidents in India than anywhere else in the world, including the more populous China. Calling road fatalities an "epidemic" that will become the world's fifth biggest killer by 2030, the report said while rich nations had been able to lower their death rates, these were sharply on the rise in the third world. It said 90% of deaths on the world's roads occur in low and middle-income countries though they have just 48% of all registered vehicles. Road deaths in India registered a sharp 6.1% rise between 2006 and 2007. However, road safety experts say the real numbers could be higher since many of these accident cases

are not even reported. There is no estimate of how many injured in road accidents die a few hours or days after the accident. The report pointed to speeding, drinking-driving and low use of helmets, seat belts and child restraints in vehicles as the main contributing factors. In 2004, road accidents were the top ninth cause of death in 2004. Speed is the main reason behind accidents. An increase in average speed is directly related to both the likelihood of a crash occurring and to the severity of crash consequences. A 5% increase in average speed leads to an approximately 10% increase in crashes that cause injuries and a 20% increase in fatal crashes. Only 29% countries had managed to reduce traffic speed in urban areas and 10% have been effective in managing it.

With exploding population, increasing registration of automobiles every month, rampant encroachment of roads, nasty tendency of violating traffic rules and chaotic traffic systems have greatly contributed rapid strides in road traffic accidents. Male outnumbered female in the ratio of 3:1 can be explained by the fact that males lead a more active life and keep themselves most of the time outdoors to earn bread and butter for families besides they are more involved in activities such as driving and traveling. Highest incidence of RTA fatalities have been observed in the age group of 25-44 years (33.68%) and lowest incidence in the children below 10 years (5.38%) and persons above 65 years of age (7.37%). This may be due to the fact that persons of 25-44 years are group lead more active life and keep themselves outdoors most of the time. Besides they have a universal habit of taking risks like boarding a moving vehicle, traveling on footboard of vehicle, crossing the roads carelessly and risky speed driving etc. Involvement of children 10-14 years (11.05%) is owing to the fact that children have the universal urge to play on roads, violate traffic rules and poor judgment while crossing roads. Least fatalities in older persons are due to more experience, more traffic sense, less tendency to take undue risks and they remain mostly indoors and lead less active life.

## **II. LITERATURE REVIEW**

### **Causes of Road Accidents**

There are various causes of accidents. Some people drive away too fast or do so under the influence of alcohol. This is known to be one of the prime reasons for accident. Broadly if we try to analyze these causes and according to the survey

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conducted by CIRT (Central Institute of Road Transport), driver is the responsible factor in 75% of cases. The mistakes and attitude of driver category can be discussed as:

- Wrong overtaking
- Over Speeding
- Under influence of alcohol
- Rash and negligent driving
- Violation of traffic rules and signs.
- Fatigue and insufficient rest.

### **Risk Taking Behaviour & Attitude towards Traffic Issues**

This is one of the most conspicuous differences between countries like US and India. One of the most obvious reasons is population. The other is that we have never realized that we need a traffic sense. It is not an issue driving in a haphazard, zigzag manner. It becomes a problem when we do it at the expense of the other driver's peace of mind. Everyone, be it the person riding the two-wheeler or the person driving the auto or the four-wheeler, wants to be the first one reaching their respective destinations. So, we drive rashly without the slightest thought about the others on the road. Driving with a care for others on the road will make the ride a peaceful & safe one for yourself and as well as others.

Above mentioned reasons are supported by several studies conducted in various parts of the world. There is no single reason for road accidents and mishaps in India as well, on the contrary Indian citizen depict different behaviour towards traffic laws and safety which is based on numerous factors.

Considering all here mentioned mistakes and attitudes Indian drivers also consider it not as serious as it seems like other drivers in other countries. As studies have found out risk perseverance of the drivers is important factor while judging risky driving behaviour. Perseverance of risk depends mainly upon factors like age and gender. Younger drivers have lesser or poorer perception of risk than older drivers.<sup>1</sup> (Yagil Dana, (1998)) Human mistakes and attitudes has different underlying roots. One can consider risk taking ability and readiness as

the main reason for their unsafe behaviour while driving. It was found that male drivers are more adventurous and risk takers which make them prone to crashes.<sup>2</sup> (Fergusson D, Swain-Campbell N, Horwood J., 2003)

Different perspectives like personality, social psychology, lifestyle of the driver have attempted to explain risky driving and traffic accidents.<sup>3,4,5,6,7</sup> (Crundall D, Van Loon E, Underwood G, 2006) (Machin M.A., Sankey K.S., 2008) (Sixsmith J, Sixsmith A, 1993) (Ulleberg P, Rundmo T. 2003) (Zhuang M, Bai H, Xie X, 2007) They say 'a man drives as he lives', Author Simpson has also emphasized on the importance of lifestyle of the driver as a determinant of risky driving behaviour. This can also give direction towards lifestyle factors being related to causes of road collisions <sup>8</sup> (Simpson H. M. , Community-based approaches to highway safety, health promotion and drinking-driving. *Drug Alcohol Depend*, 1987;20:27-37) and other driving behaviour.

Going in depth of the driving violations and crashes on road researchers used problem behaviour approach. This approach showed that problem driving was somewhere related to problem behaviour like smoking, drinking, antisocial behaviour up to some extent and involvement of non-organized activities with friends.<sup>9,10</sup> (Bingham C. R. Shope J. T., 2004) (Bingham C. R. Shope J. T., Rangunathan T, 2006) Drivers with Attention Deficit Hyperactivity Disorder (ADHD) since childhood are also at higher driving risk. ADHD does not interfere with the driving knowledge as much as it does with performance and control of the vehicle while driving.<sup>11</sup> (Barkley R. A. , Murphy K. R. , Kwasnik D,1996) UK driving population has been studied on the basis of social motivations and attitudes for engaging in risk. Study, at the end, identified four groups of which those taking risk unintentionally formed the largest group. One group who took risk while reacting to stress or being in hurry, another group with deliberate risk taking behaviour and other group of people taking risk when they feel to do so; like in known area & roads, late at night, in less traffic areas and a continuous risk taking people who frequently took risks for their own sake was identified.<sup>12</sup> (Musselwhite C, 2006) Zero risk behaviour theory also depicts similar concept for risk taking attitude in drivers. Drivers who are impulsive and respond quickly to the stimuli and without thought-are more likely to drive in risky manner.<sup>13,14,15,16</sup> (Arthur & Doverspike, 2001; Beirness, 1993; Dahlen et al., Individual 2005; schwebel et al., 2006)

### **Age & Gender as Significant Factors**

In the research process for traffic sense and attitude towards traffic behaviour many researchers have found age and gender of the driver very significant factor in their behaviour while driving. As no behavioural pattern can be developed in isolation the underlying factors like personality, childhood of an individual, anger rate of the person actually plays important part in driver's behaviour. Taking personality in consideration researchers have found that extroverts are less socialized and are less bound by the prescribed rules and this is reserve for the introverts.<sup>17</sup> (Fine B. J., 1963) Schwebel, Ball et al. In their study mentioned that men reported more tickets than women in the survey. Also men scored more in thrill and adventure scores.<sup>18</sup> (Schwebel D. C., Ball K. K., Severson J., Barton B.K., Rizzo M., Viamonte S. M., 2003) Younger generations do not even see themselves at the risk while breaking or ignoring the traffic rules.

Men have been believed to be more involved in various type of driving activities as compared to women as drivers. It has also been studied that men get more angry seeing a policeman, they get irritated by slow driving by other drivers.<sup>19</sup> (Deffenbacher J. L., Oetting E. R., Lynch R. S., 1994) Drivers' judgement is also dependent on the age and experience no gender difference have been found in the same.<sup>20</sup> (Vernic J. S., Ogaitis, G. Li S., Mac Kenri E.J., Paker S.P. and Gilem N. C. (1999)) women are more likely to make judgemental errors while driving. On the other side men are more likely to involve in unsafe driving behaviour such as driving after drinking and speeding.<sup>21</sup> (Harre N., Field J., Kirkwood B., 1996) Men reported less risk perception than women in all items. Men were reported taking more risk than women. With the exception, more women were reported text messaging than men during the research.<sup>22</sup> (Ivers R., Senserrick T., Boufous S., Stevenson M., Chen Huei-Chen, Woodward M., Norton R., 2009). One cannot have a sure shot results for the driving and crash causes as several studies found no differences in age, number of years driving, having caused a crash, or traffic tickets.<sup>23</sup> (Dula C. S., Ballard M. E., 2003)

### **Use of Mobile Phones**

Using mobile phone and driving simultaneously is potentially a strong lethal combination. Mobile phone use while driving is common but controversial. Because of this, some jurisdictions have made the use of a cell phone while

driving illegal. Others have enacted laws to ban handheld mobile phone use, but allow use of a hands-free device. In some cases restrictions are only directed to minors or those who are immediate license holders. Time has changed in such a way that young adults do not feel using mobile while driving risky. They consider it to be their skill to manage two things together. Although researchers have found that mobile phone tasking while driving has negative effect upon drivers' choice reaction time, workload of the driver increased as he talked on phone while driving.<sup>24</sup> (Alm H., Nilsson L., 2009) Researchers believe that talking on phone while driving may lead to multiple distractions which include eyes off the road, minds off the road, hands off the steering wheel and no attention to surrounding situations. These all leads to longer reaction time, ability to keep in correct lane and shorter following distances. Drivers are four times more prone to crash while talking on phone.<sup>25</sup> (Mobile phone use: a growing problem of driver distraction, World Health Organization report) A study by University of South Florida's Center for Urban transportation Research stated that chances of being prone to accident were 34 percent to 300 percent higher for mobile phone users while driving. Studies have also mentioned after effects of using a mobile phone in car. Collisions have been registered even after ten minutes of mobile phone use and this is marked as 'cell phone related' crash. Here it is tough to identify and establish cause and effect relationship. Mobile phone has been identified to be the main distraction for the drivers more than anything else. Studies say that, "Subjects involved in phone conversations showed significantly slower response to traffic signals and missed signals entirely much more often than subjects who were listening to the radio or a book on tape."<sup>26</sup> (Strayer, David, Drews F., Albert R., Johnston W., 2001)

### **Efforts to Create Traffic Awareness**

Road Safety Week is being celebrated from 1<sup>st</sup> to 8<sup>th</sup> of January month. The WIAA (Western India Automobile Association) jointly in association with the Transport Commissioner & Joint Commissioner of Police, Traffic, organizes Traffic Safety Week nationwide. This week is celebrated to increase traffic awareness and to impart safety while being on roads. During this week various activities and competitions are held by various organizations as well as by malls and public gathering places to involve maximum citizens in the drive towards safe roads in the country.

This decade is declared to be 'A Decade of Action for Road Safety' from 2011 to 2020 by World Health Organization. A well-known international fast food retail chain Domino's Pizza, managed by Jubilant Food Works in India has launched traffic safety awareness campaign in this decade of traffic safety to spread awareness among its customer group. It has come up with 'National Poster Making Competition on road Safety'. Another fast food chain has also put in similar efforts. Mc Donald's in India has sponsored various creative traffic safety slogans to be put on hoardings during the Traffic Week in the month of January.

Following are some activities held by various NGOs, schools and Traffic Wings of city police during Traffic Week celebration:

- Free PUC check ups.
- Free reflective films to be put up on commercial vehicles.
- Free eye-testing camps and free distribution of spectacles as prescribed by the examining doctor.
- Blood donation camp.
- Safe driving classes on driving simulators.
- Safe driving classes for taxi drivers, truck drivers carrying hazardous goods, school bus drivers and BEST bus drivers throughout the week.
- Drawing-cum-slogan competition for children at the WIAA Traffic Childrens' Park.
- Free training to school bus drivers.

The city police launched a year-long traffic awareness campaign for citizens. Various events have been planned at regular interval. The drive was launched in association with the Traffic Education Trust, Surat Municipal Corporation (SMC), Drashtikon, an amateur photographer club, and Youngistan, a youth group. The year-long campaign is named 'I Follow', which encourages citizens to follow the traffic rules. Campaign will focus on common rules related to helmet, no-parking zones, driving on wrong side, over speeding and traffic signal. Police believe that majority of the problems take place due to not following these simple rules. Among the events are photography competition, painting contest for school students, cycle rally, marathon, concept designing for

fine arts and engineering students, graffiti wall painting and short film making. School students offered wrist bands with message of 'I Follow' to traffic rule followers at important locations in the city. Street plays were also been staged by theatre.

## ROAD TRAFFIC SCENARIO IN SURAT

Surat is very rapidly emerging as an industrial city in the state of Gujarat. The rate of population growth is quite significant and largely due to migration of people from across the country. The nature of industry and business in Surat is quite heterogeneous. All these factors have been instrumental in attracting people from across the country. Along with the increase in population, number of vehicles has also increased leaps and bounds. It is estimated that more than **8 lacs of Vehicles** are moving on the roads of Surat city. This enormous number of vehicles poses a big challenge to the authorities who shoulder the responsibility of managing it. The ratio of number of vehicles to population is about 1:3 (for every 3 person in the city, there is a vehicle).

The Southern Gujarat Chamber of Commerce and Industry (SGCCI), an apex organisation of trade and commerce, has set up a traffic cell' to extend a helping hand to city traffic police, which is grappling to tackle the big problem. The SGCCI traffic cell will give valuable suggestions to the engineering department of Surat Municipal Corporation (SMC) and law enforcement agency on solving traffic problems, provide traffic education to school and college students in joint co-operation with District Education Office (DEO) and also organise quiz competitions and seminars on traffic issues for children among other things.

There are over 140 textile markets on Ring Road housing about 50,000 textile shops. In the two km radius from Sahara Darwaja to Maan Darwaja, more than 1.25 lakh vehicles owned by shop owners and their customers are parked on both sides of the road and beneath the flyover bridge. It's difficult for commuters to use the Ring Road during day because of tempos, trucks, two-wheelers and private cars. There is a feeling that SMC should construct at least two to three multi-level parking facilities to ease traffic problems there are many such areas when much work is needed the city. The governance is trying their best in co-ordination with the city police to come up with best possible solution. SGCCI had a meeting on January 30 with police commissioner Shivanand Jha on traffic



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and crime issues where the latter announced that state government has allocated Rs 2 crore to Surat police to set up a CCTV camera network in the city. This has already become functional in 30 percent area of the city. The cameras will be used to identify the drivers who break traffic rules and auto generated fine receipt will be sent to their residence. This will be in connection with the data available from regional Transport Office of the city. They also want to press for automatic traffic signals in order to reduce the number of traffic cops at intersections. This will free many policemen to be deployed at highly congested areas.

Talking regarding driving behaviour in the city people say that one who is able to drive in Surat city safely can drive in any city of India. People here do not obey general rules like overtaking from right side, or blowing horn before going to the main road from a street, using an indicator for turns and much more. In foreign countries horns are used as the last resort on the roads where as here in India we blow horns to mention 'I am here'. Excessive use of horn blowing has also drawn attention of activist for voice pollution in our cities and country. Rash driving on heavily crowded roads has resulted into fatal accidents. The most important thought provoking issue has emerged that people consider their convenience and mood first and then everything else comes into the picture.

### **III. RESEARCH METHODOLOGY**

The literature review indicates that people's attitude towards the traffic rules and regulations have been largely responsible for unsafe driving. Several measures have been taken by the government authority such as conducting awareness campaigns, educating people and even the punishment to promote safe driving behavior. However these efforts seem to have created negligible impact on the behavior of the people. This study is an attempt to understand the attitude of the people towards safe driving and traffic rules. Several research questions have been formulated as given below:

- Do people drive safely? Do they follow the traffic rules, such as over-speeding, overtaking wrongly, or blowing horn unnecessarily?
- Does demographic factors like age, gender, occupation and education affect peoples' attitude towards safe driving?

The main objective of the research is to study the traffic behavior of the people and their attitude towards safe driving and traffic rules. This objective had been sub-divided into following actionable and measurable research objectives:

- To measure the attitude of the people towards over speeding,
- To measure the attitude of the people towards overtaking wrongly
- To understand why they unnecessarily keep on blowing horn
- To understand why people use mobile phones while driving

Considering the type of data and need of the situation, descriptive study was considered as the most appropriate option. The present research followed an ex-post facto design of the study and was conducted in the field setting. The population comprised of the people in Surat city and the sampling frame was considered as people who are driving various vehicles on road in Surat city. Thus, the sampling unit was an individual who regularly drives any vehicle on road in Surat city. A total of 110 respondents could be contacted and they were selected using convenience sampling method. The respondents were contacted personally. The respondents were surveyed at the places such as shopping malls, tuition classes, schools and colleges. Professional drivers like auto rickshaw drivers and truck drivers were interviewed at rickshaw stands and places where they were available. During the process of data collection and data analysis basic demographics were considered like age, gender, educational qualification, occupation, behaviour at the traffic signal, type of vehicle used (two-wheeler/ four-wheeler and personal use/ professional use).

Following hypothesis was used:

- People are willing to change their traffic behaviour if proper orientation is given.
- People are serious about risks behind their insensible traffic behaviour.
- People are serious about road accidents and other consequences of unsafe driving.
- Young people drive more risky than old generation people.
- Young people drive more speedily.
- While driving people have their own convenience on their top of mind.

#### IV. DATA ANALYSIS AND FINDINGS

A total of 145 responses were collected, out of which 110 usable responses were analyzed for the purpose of reporting in this paper. The respondents were largely the young male students having two-wheelers that they were using for commuting. The following table shows the respondents' profile:

<b>Respondents' Profile (n=110)</b>					
Gender			Occupation		
Male	73	66.4%	Students	70	63.6%
Female	37	33.6%	Service	29	26.4%
			Business	9	8.2%
			Housewife	2	1.8%
Age			Vehicle Type		
21-30 yrs	65	59.1%	Two-wheeler	102	92.7%
31-40 yrs	33	30.0%	Three-wheeler	5	4.5%
> 40 yrs	12	10.9%	Four-wheeler	3	2.7%
Education			Use of vehicle		
Up to 12 <sup>th</sup>	27	24.5%	Personal	106	96.4%
Graduate	70	63.6%	Professional	4	3.6%
Post-graduate	13	11.8%			

#### Driving Speedily

The respondents were asked to elicit their response towards the statement "I like speedy driving." The mean score turned out to be 2.53 (on a scale of 1=strongly disagree to 5= strongly agree), indicating that respondents disliked over speeding. About 56% of the respondents did not find any pleasure out of fast driving, and about 27% of the respondents reported that they liked it.

The cross-tabulation between age and whether the respondents liked over speeding did not yield positive result. Thus, no relationship was found between the age and the respondents' attitude towards over speeding.

It is interesting to note, however, that the behavior related to over speeding was found to be contrary when their behavior was actually observed. It was found by the observation method that young people generally were driving more speedily and riskier than other age group of people.

### **Blowing Horn Unnecessarily**

The data analysis revealed that more than 62% of the respondents agreed to the point that they tried and avoided the usage of horns, whereas around 44% respondents agreed that they did not try and avoid the usage of horn during driving. Following two statements were used to elicit their responses about horn blowing behavior.

Horn blowing will move traffic faster	Mean=3.43
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Horn blowing will alert others driving near to you	Mean=3.74
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The respondents revealed that they used to blow horn only when they felt it necessary.

### **Use of mobile while driving**

It was found that the respondents did not think that mobile usage while driving was dangerous. Combining those who disagreed and those who strongly disagreed, 76 (70%) out of 110 did not think that mobile usage was riskier.

The respondents in the age group of 21- 30 years said that mobile usage was not dangerous (mean score of 2.08). The observation of the behavior also confirmed this finding.

### **Over taking wrongly**

When asked about the way they overtake the vehicle, 51 out of 110 respondents agreed that they used to overtake the vehicle from either side available. At the same time they were also aware about the rule of over taking from driver side only. The mean score of 3.12 showed that people were not so sure about the risk behind their wrong overtaking.

## **V. DISCUSSION**

The findings revealed no significant relationship between age of the respondents and their attitude towards over speeding and blowing horn unnecessarily. This

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finding goes with the findings of previous studies (Dula C. S. and Ballard M. E., 2003).

The findings revealed favorable attitude of the people in case of over speeding and also in case of blowing horn unnecessarily. However, the observation of the behavior revealed the outcome that was contrary to their attitude. This means that though there was a positive attitude, the resultant behavior was missing. This may be due to the absence of compelling subjective norms that motivate people to develop the intention and subsequently to engage in safe driving.

The past studies have shown that the drivers are four times more prone to crash while talking on phone (WHO, 2011). The findings of the present study revealed that people – especially the younger ones – did not find use of mobile while driving to be risky. The same was found to be true with over taking from the wrong side. This was an interesting finding of the study as the respondents did not find these two behaviors to be risky.

## **VI. CONCLUSION AND RECOMMENDATIONS**

The study revealed that the people do have a positive attitude towards the risk associated with over speeding. They also did not believe in blowing horn unnecessarily. This could be due to the ongoing campaigns launched by government to form favorable attitude of the people towards safe driving. However, the subjective norms that may compel them to drive safely in terms of over speeding and blowing horn unnecessarily are missing. The campaigns launched at correcting the traffic behavior of the people must address this issue.

When it comes to overtaking from both the sides, the results showed that respondents were not very sure of the risk associated with such behavior. This must be emphasized in the campaigns aimed at correcting traffic behavior.

The results showed that the young people did not find anything wrong with the use of mobile while driving. There has been no effect on the behavior of people of different age group or different type of vehicle owners in regard to the issue of using mobile phones while driving. Study has shown that people from all age group invariably use mobile phones while driving. The government and the traffic police must address this issue and make sure that the youngsters develop an attitude of avoiding the use of mobile while driving.

## VII. LIMITATIONS AND SCOPE FOR FURTHER RESEARCH

The study has several limitations that restrict the findings to be more generalized. The study included a majority of young students who were riding two-wheelers. Secondly, the study was aimed at measuring peoples' attitude towards behavior and hence did not measure the subjective norms. Though, the observation method was employed, it was not done for all the respondents.

It is suggested that a further research may be carried out using a combination of survey and observation method of all the respondents. It is also suggested to carry out a comparative study of attitude of personal drivers and professional drivers.

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