



Mitigation of road accidents (A public view with reference to the inhabitants of Calicut)

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Abstract

Road accidents are one of the major reasons for loss of life in our country. With over 1, 30,000 deaths annually, India have over taken China and have the worst road traffic accident rate worldwide. Road safety experts warn that the real number of fatalities could be much more since many cases are not even reported. So many injured people in road accidents die after few hours or days. But these cases are not included as road accidents. According to experts at The National Transportation Planning and Research Centre (NTPRC) the number of road accidents in India is three times higher than that prevailing in developed countries. Even educated people those who are aware of traffic rules and with proper license, break traffic rule for their convenience. Over speed, drunken driving and violation of traffic rules are a few common causes of road accidents in our country. It is very easy to get driving license in our country and the punishments for errant drivers are light. These are to be changed. This research paper analyses the reasons and remedies for road accidents from the view of the inhabitants of Calicut city in the state of Kerala. It also analyses the association between compliance to road rules and accidents. The prime objective of this research paper is to mitigate the issue of road accidents by exposing the readers with what is the general public's view towards compliance of road rules and the causes for road accidents in our country.

Keywords: road, accidents, minimising, negligence, drunken driving, over speeding

Introduction

Transportation is the process of carrying persons and goods from one place to another. There are many modes of transport like air, water and road transport. Road transport is one of the cheapest means of transports. Hence it carries maximum number of persons from one place to another. But lots of people are dying every day in their journey due to negligence or unexpected happenings. The analysis of road accident data 2015 of Ministry of Road Transport & Highways, Government of India ^[1] shows that on Indian roads about 1,374 accidents and 400 deaths take place every day. On an average it is 57 accidents and loss of 17 lives every hour. The data also reveals that 54.1 percent of the total persons killed in road accidents in 2015 were in the age group of fifteen to thirty four years. Kerala State is in the fifth place with 39,014 road accidents among top thirteen states in the country. WHO ^[2] says that road accident is the second highest case of death for five to twenty nine year old people. The estimated number of road traffic deaths in India is 2, 07,551 in 2013 (16.6 is the estimated road traffic death rate per 100,000 population in the year 2013). In India hardly 0.4 million road accidents/collisions are only recorded out of the estimated 1.4 million serious road accidents/collisions annually. The real causes and consequences of these accidents are never known, since only a minimal percentage of these collisions are scientifically investigated. Only when understand the actual causes and consequences of road accidents, road safety can be improved and remedial measures can be work out, says Institute of Road Traffic Education ^[3]. According to Transport Research Wing of Ministry of Road Transport and Highway of India ^[4], Kerala's share is 8.3% (i.e. 41096) out of the total

number of persons injured in road accidents in the country during 2014.

Occurrence of road accidents

Driver's negligence: Use of alcohol or drugs while driving, over speed, chasing, hearing music in high volume while driving, talking over mobile phone while driving, talking with others while driving, poor eye sight of drivers, dozing while driving, ignoring traffic signals, non use of helmet and seat belts are some of the major negligence on the part of drivers.

Passenger's negligence: Boarding in a moving vehicle, standing on the foot board while traveling, putting hands or head out of a moving vehicle, talking with the driver while driving or any activities which distract the attention of the driver, getting down from a moving vehicle are some of the main acts come under this head.

Pedestrian's negligence: Crossing roads unexpectedly (not in the zebra crossing), walking on the road (not on the foot path) etc come under this head.

Unexpected events: Poor condition of roads, lack of traffic signals, unexpected animal crossings and mechanical failure in vehicles are some of the unexpected events that cause road accidents.

Reasons for road accidents

Drunken driving, minor driving, driving without skill (license) are some common scenes that lead to road accidents in India. Even those who have taken a proper driving license either do

not know the basic driving manners or violate traffic rules such as to keep left, following signals, speed limit, blowing horn, keeping minimum distance from vehicles in front, overtaking, use of light variation during night, give way for other vehicles, using rear view, gradual braking, non-use of mobile phones while driving, wearing helmets and seat belts. Public transport vehicles are crowded beyond the permitted passengers limit. Passengers are found to very commonly board a moving vehicle, stand on foot boards, get down from a moving vehicle and lean out of moving vehicles. Pedestrians lack awareness on many road rules such as to keep right, use of zebra crossing, walking on foot path and following traffic signals and manners.

On the other hand, the poor infrastructure on Indian roads causes a big danger. Narrow roads, encroachments, pot holes, and unevenly laid roads are very commonly found everywhere. Lack of traffic signals, lights, dividers and police control are other few administrative drawbacks. Further formidable increase in the number of vehicles on road in recent years is a major reason for road accidents. World Health Organisation (WHO) in its first ever Global Status Report on Road Safety (2013) ^[5] pointed to speeding, drunk driving and low use of helmet, seat belts and child restraints in vehicles are the main contributing factors to road accidents. Alexander Thandi Ubani ^[6], in the article 'Causes of Road Accidents and Prevention' says 'one of the major causes of accidents is speeding. When drivers deliberately drive above the regulated speed limit, whether to showoff, to meet a deadline or just for fun, they put their own lives and the lives of others at risk'. Times of Indi ^[7] reports that speeding and drunken driving are the two big reasons for fatalities in road accidents.

Statement of the Problem

Road accident is one of the major causes of death in our country. Such accidents also leave many partially impaired making bread winners of several families jobless. Lives are precious and many bereaved families are left in lurch. Yet, people have not realized their role in minimizing it. Though there exist many physical reasons for road accidents, mere negligence from the side of drivers, passengers and pedestrians also takes a heavy toll of lives. While studies are conducted for developing businesses and technology, rarely studies are conducted to prevent people from such physical damages. Hence, there is a real need to study people's mind towards the various arena of road accidents to mitigate it.

Road accidents matters the most in cities and that too for Calicut, a major town of Kerala, a place known for its population and tourism, it is more important. Narrow roads, heavy traffics, curved and steep roads, pedestrians and passengers crowd are some of the unique nature of this town causing road accidents very often. A strong need for researching the opinion of the residents of this town towards road accidents, and their awareness on probable road accidents due to nonobservance of road rules is imperative to find ways for minimizing road accidents in general.

Objectives of the study

The following are the main objectives of the study

- To study people's attitude towards road accidents and

observing traffic rules

- To study the common man's reasons and remedies for road accidents
- To check the common man's belief towards the association between observance/nonobservance of road rules and probable chances for minimizing road accidents.
- To offer generic suggestions to minimize road accidents

Research methodology

Primary data were collected from Calicut town in Calicut district of Kerala. The choice of this town is substantiated by the physical conditions of its roads, terrain, traffic and crowd. The survey was administered invariably among all groups and section of people without eliciting their demographic details.

Sampling and Data collection

Primary data were collected from two hundred and forty (240) adult residents of Calicut town of Calicut district in the State of Kerala by using a simple structured questionnaire. The survey was conducted among conveniently accessible commuters, shop keepers, customers and other busy people found near bus stands, railway stations, parks, sea shore, shopping complexes trade areas and other public places. The opinions of adults were obtained in common irrespective of any other demographic classifications. The questionnaire used for the survey had simple dichotomous questions and questions with fewer choices so that it can be filled effortlessly in less time for a suitable response. Short personal interviews were also conducted to draw fewer related details on the inhabitants' opinion. Secondary data relevant to the study were collected from articles in magazines, books and websites.

Period of study

The study was administered between August 2017 and January 2018.

Tools used for the study

Percentage analysis, Average score analysis and Spearman rank correlation coefficient tests have been performed to process the collected data and meet the objectives of the study. Percentage analysis has been used to know the inhabitants opinion on the importance of minimizing road accidents. It has also been used to find how many people observe road rules. A three point scale was used to record the respondents' opinion on the reasons and remedies for road accidents. Qualitative record of data were further attributed with quantitative scores and then averaged. Further, spearman rank correlation coefficient test has been used to know the association between inhabitants' opinion on the probable chances for road accidents when observing and not observing road rules.

Data analysis and interpretation

The collected data have been analysed and suitable interpretations have been made under the following heads to meet the objectives of the study.

1. Are road accidents the major cause for death?

Table 1: Opinion of the respondents towards road accidents and cause of death

Are road accidents the major cause for death?	No. of respondents	Percentage
Yes	196	81.67
No	44	18.33
Total:	240	100

Source: Primary Data Percentage analysis

Among 240 clients surveyed inferences from Table-1 reveals that 81.67 percent of the respondents are of the opinion that road accident is one of the major causes for death in our country and 18.33 percent of them believe that it is not. Majority are of the opinion that road accident is one of the major causes for death in our country.

2. Observance of road rules

Table-2 details the percentages of Calicut town inhabitants those who are observing road rules and those who do not. The numerical comments on habits mentioned in the table are arrived through compiling a comprehensive survey on the respondents' behavior in observing various road and traffic rules.

Table 2: Practice of observing road rules

Observance of road rules	No. of respondents	Percentage
Observed	172	71.67
Ignored	68	28.33
Total:	240	100

Source: Primary Data Percentage analysis

Inferences from Table-2 shows that 71.67 percent of respondents do observe road rules and 28.33 percent of them do not. Majority of the respondents are found to respect and follow road rules.

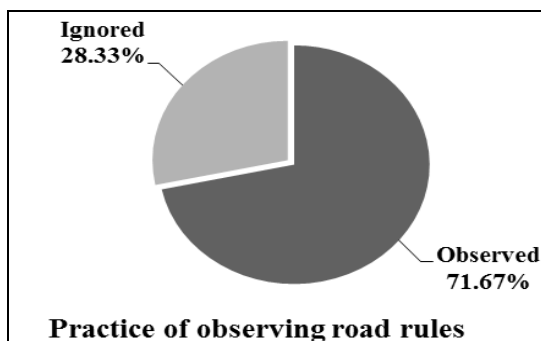


Fig 1: Practice of observing road rules

3. Reasons for road accidents – A common man’s view

Table 3: Opinion on the reasons for road accidents

Reasons for road accidents	Opinion			Average score	Rank
	High	Moderate	Low		
Use of alcohol and drugs while driving	192	28	20	2.71	1
Driving vehicles without having license	112	84	44	2.28	6
Lack of awareness about road rules by drivers	148	52	40	2.45	3
Lack of awareness about road rules by passengers	124	88	28	2.40	4
Lack of awareness about road rules by pedestrians	84	76	80	2.01	10
Narrow roads and lack of good quality roads	76	84	80	1.98	11
Lack of traffic signals, lights, dividers etc	68	52	120	1.78	12
Lack of traffic police	80	88	72	2.03	8.5
Over speed	160	60	20	2.58	2
Lack of maintenance of vehicles	84	80	76	2.03	8.5
Physical condition(poor) of drivers	88	80	72	2.06	7
Formidable increase in the number of vehicles in recent years	120	72	48	2.30	5

Source: Primary Data Average score analysis

Inferences from Table-3 (Average score analysis) shows the opinion of respondents on the various reasons for road accidents. Most of the respondents believe that use of alcohol and drugs while driving is the main reasons for road accidents (2.71), followed by over speed (2.58), lack of awareness about road rules by drivers (2.45), lack of awareness about road rules by passengers (2.40), formidable increase in the number of vehicles in recent years (2.30), driving vehicles without

having license (2.28), poor physical condition of drivers (2.06), lack of traffic police (2.03), lack of maintenance of vehicle (2.03), lack of awareness about road rules by pedestrians (2.01), narrow roads and poor condition of road (1.98) and lack of traffic signals (1.78). It is inferred that almost all the stated reasons for road accidents is agreed considerably by the respondents.

4. Remedies for minimizing road accidents – A common man’s view

Table 4: Opinion on remedies for minimizing road accidents

Remedies for minimizing road accidents	Level of opinion			Average score	Rank
	High	Moderate	Low		
Obeys road rules	193	27	20	2.72	1
Place traffic signals and obey them	119	72	49	2.29	6
Drive the vehicle with original license	114	84	42	2.30	5
Avoid over speed	161	59	20	2.58	2
Make dividers	85	75	80	2.02	9
Fitness certificate for drivers and vehicles	84	81	75	2.03	8
Make good quality wide roads	148	53	39	2.45	3
Appoint enough traffic police men	88	80	72	2.06	7
Punishment for those who violate the rules	124	88	28	2.40	4

Source: Primary Data Average score analysis

Inferences from Table-4 (Average score analysis) shows the opinion of the respondents regarding remedies for minimizing road accidents. Most of the respondents believe that obeying road rules (2.72) is the best remedy for minimizing road accidents, followed by avoiding over speed (2.58), good quality wide roads (2.45), punishment for those who violate the rules (2.40), driving the vehicle with having license (2.30), placing traffic signals and obeying them (2.29), appointing enough traffic police men (2.06), fitness certificate for drivers and vehicles (2.03), and dividers (2.02). All remedies stated have been given due importance by the respondents for minimizing road accidents.

5. Inhabitants belief towards the probable chances for accidents on observance and nonobservance of road rules

The opinion of the inhabitants of Calicut town was sought on their belief towards probable chances of road accidents when road rules are observed and when not observed. The linear association between the chances for accidents on observance

and nonobservance of road rules was also found based on the respondents opinion and is presented below.

Table 5: Linear association between probable chance for accidents on observance of road rules and non-observance of road rules based on the respondents’ opinion

Type of road rules	Chance for accidents on observance of road rules	Chance for accidents on non observance of road rules
Traffic signals	20	220
Over speed	8	232
Do not over take in turning	12	228
Keep left	40	200
Blow horn	104	136
Put signals	80	160
Dim light	60	180
No ‘U’ turn	52	188
Wear seat belt	100	140
Put helmet	120	120

Source: Primary Data Spearman rank correlation coefficient test

Table 6: Spearman rank correlation coefficient test value

Calculated Value of Spearman rank-correlation coefficient	Result
-1	There is strong negative correlation between chance for accidents on observance of road rules and chance for accidents on non-observance of road rules. When observing road rules, chance for accidents decrease and when not observing road rules, accidents increase.

In Table-5 (Spearman rank correlation coefficient test), calculated value of Spearman rank correlation coefficient test (-1) shows that there is a strong negative correlation between chances for accidents while observing road rules and chances for accidents while not observing road rules. Chance for road accidents decreases when observing road rules and chance for road accidents increases when road rules are violated.

Test for significant rank correlation

H₀: No rank correlation between observance/non observance of road rules and probable chances for accidents.

Table 7: Test for significant rank correlation

Calculated Value	Table value	p-value	Level of significance	Result
3.030303	.4988	0.0024	5%	Significant

In the test for significant rank correlation, the p-value (0.0024) is lower than the significance level (.05). The null hypothesis is rejected, affirming a significant correlation between the chances for accidents when road rules is observed and when it is not observed.

Above tests authenticates the significant negative linear rank

correlation between the probable chances for accidents on observance of road rules and non-observance of road rules.

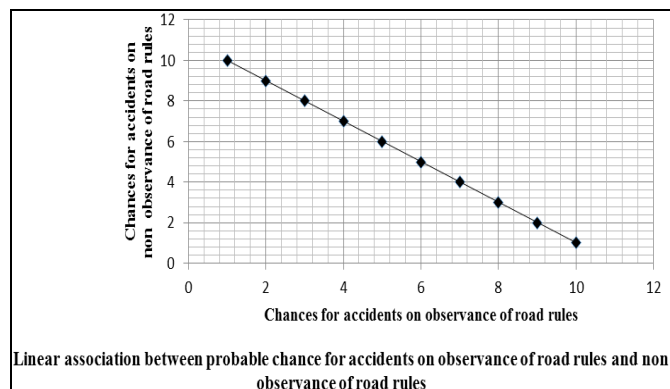


Fig 2: Linear association between probable chance for accidents on observance of road rules and non-observance of road rules based on the respondents' opinion

Findings and suggestions

Road accidents are to be minimized to save valuable human lives. This study reveals that most of the respondents believe that road accidents are one of the major causes of death in our country. Though the percentage of those who do not follow road rules is low compared to those who follow road rules, yet it is a considerable percentage which cannot be ignored as each and every individual's life is important both for their family and society. Reasons for road accidents seem to be all. However, drunken driving and over speeding occupies the first two places followed by lack of awareness about road rules, formidable increase in the number of vehicles in recent years, poor road conditions, lack of traffic control and poor maintenance of vehicles. Similarly the remedies for minimizing road accidents also seem to be all. Most of the common people believe that obeying road rules is the best remedy for minimizing road accidents. However, other remedies such as avoiding over speed, quality wide roads, punishment for violators of rules, skillful licensed driving, traffic signals, traffic control, and dividers are equally important in the eyes of the people. Further, their opinions affirm a significant correlation between the chances for accidents when road rules is observed and when it is not observed. This correlation is negative and clearly shows that people are aware that chances of accidents decreases while observing road rules and increases while it is not observed.

To minimize road accidents, co-operation from drivers, passengers and pedestrians are very essential. Educational institutions, social workers and government should come forward to educate people in this affair. Conducting awareness programs can be a useful remedy for minimizing road accidents. The state, public authorities and NGO's can take up this task to a big level. It is a good indication that the traffic department is already doing this campaign by observing a week for road safety. The changing rules for road safety are also a good sign. But the quality of our roads is not in accordance to the increase in the number of vehicles. There is a formidable increase in the number of vehicles on road in recent years. Wide and good quality roads are to be made to ensure smooth traveling. Corporate houses can create

necessary infrastructure for safe roads and traffic as a part of their Corporate Social Responsibility (CSR).

Limitations and scope of the study

The analysis of the data has not been done with any variation in the demographic profile of the respondents. Hence, the views of the study are common to all adults irrespective of gender, class, educational status, and other demographic taxonomy.

The result of the analysis made in the study depends fully on the data obtained from the inhabitants of Calicut town. Inferences and suggestions made may be well applicable to towns and places of similar nature.

Conclusion

Minimising the road accidents cannot be done by taking a single measure. It cannot be done by a single person either. Hence, due importance should be given to all possible remedies. Further, the state should take care in creating necessary infrastructure and systems for safety. Drivers should realize that it is their duty to know the road rules, follow them and practice skillful driving. Passengers and pedestrians should simultaneously realize their role of exercising care and following the rules in minimizing road accidents. Non-Governmental Organisations and Corporate houses should come forward and give a helping hand in creating safe roads environments. Road safety needs to be ensured from all 360 degrees.

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