

**PSYCHOLOGICAL IMPACT OF ROAD ACCIDENTS- AN ANALYTICAL STUDY IN BENGALURU**

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**ABSTRACT**

The Road accidents in the city are attributable to the growing number of vehicles, burgeoning population, active nightlife, heterogeneous modes of transport, private owned vehicles and the like. Fatalities and injuries resulting from road traffic accidents are a major and growing public health problem in India. The road transport ministry uploaded the accident data of 2018. As per the report, while the number of accidents increased by less than half a percent in 2018, the number of persons killed increased by 2.4% over that of the previous year. It said that, the road accident severity measured by the number of persons killed per 100 accidents, has seen an increase little over half a percent. The present study surveyed the fatal and non-fatal accident road accident cases by surveying the dependents of the road accident victims and the survivors of non-fatal accidents in the city of Bengaluru to introspect into the psychological imperatives of the road accidents in the city of Bengaluru.

Keywords: Accidents, fatality, Psychological problems

**INTRODUCTION**

The city of Bengaluru is growing at an exponential rate with over One Crore population. The city has 198 wards with the stretch of the city across the rural districts in the city. The city characterizes floating population coming to the city in pursuit of job and economic pursuits across all socio-economic backgrounds. The people who cannot afford to housing in prime locations are inevitably have to go for housing accommodation in remote and affordable areas. This will be lacking first mile to last mile connectivity making them to resort to walking, some cases public transport, private transport, para-transit and the like. This has led to the disadvantage to the economically and socially deprived section of the society of the rightful and justified living. This has led to so many traffic problems like road rage, accidents, lack of enforcement and the like. The city has often the traffic problems which are uncontrollable during the peak hours where the flow of the traffic is at 12 Kmph. This leads the commuters stressed and strained as they spend a lot of time commuting leading to gaps in the economic productivity and lack of socialization at times.

**CAUSES AND CONSEQUENCES OF ROAD TRAFFIC ACCIDENTS**

The incessant growth and sudden developments in the cities leads to infrastructure bottlenecks causing disruption in the movement of people from one place to another. Mobility is the major factor deciding the individual, organizational and national productivity. The chapter discusses the theoretical framework in respect of the Road Traffic Accidents.

**FACTORS LEADING TOROAD TRAFFIC ACCIDENTS**

Road accident is most unwanted thing to happen to a road user, though they happen quite often. The most unfortunate thing is that we don't learn from our mistakes on road. Most of the road users are quite well aware of the general rules and safety measures while using roads but it is only the laxity on part of road users, which cause accidents and crashes. Main cause of accidents and crashes are due to human errors. We are elaborating some of the common behaviour of humans which results in accident.

1. Over Speeding
2. Drunken Driving
3. Distractions to Driver
4. Red Light Jumping

5. Avoiding Safety Gears like Seat belts and Helmets
6. Non-adherence to lane driving and overtaking in a wrong manner

Various national and international researches have found these as most common behavior of Road drivers, which leads to accidents.

### **Over Speeding**

Most of the fatal accidents occur due to over speeding. It is a natural psyche of humans to excel. If given a chance man is sure to achieve infinity in speed. But when we are sharing the road with other users we will always remain behind some or other vehicle. Increase in speed multiplies the risk of accident and severity of injury during accident. Faster vehicles are more prone to accident than the slower one and the severity of accident will also be more in case of faster the severity of accident will also be more in case of faster vehicles. Higher the speed, greater the risk. At high speed the vehicle needs greater distance to stop i.e. braking distance. A slower vehicle comes to halt immediately while faster one takes long way to stop and also skids a long distance due to law of motion. A vehicle moving on high speed will have greater impact during the crash and hence will cause more injuries. The ability to judge the forthcoming events also gets reduced while driving at faster speed which causes error in judgment and finally a crash.

### **Drunken Driving**

Consumption of alcohol to celebrate any occasion is common. But when mixed with driving it turns celebration into a misfortune. Alcohol reduces concentration. It decreases reaction time of a human body. Limbs take more to react to the instructions of brain. It hampers vision due to dizziness. Alcohols dampen fear and incite humans to take risks. All these factors while driving cause accidents and many a times it proves fatal. For every increase of 0.05 blood alcohol concentration, the risk of accident doubles. Apart from alcohol many drugs, medicines also affect the skills and concentration necessary for driving. First of all, we recommend not consuming alcohol. But if you feel your merrymaking is not complete without booze, do not drive under the influence of alcohol. Ask a teetotaler friend to drop you home.

### **Distraction to Driver**

Though distraction while driving could be minor but it can cause major accidents. Distractions could be outside or inside the vehicle. The major distraction now a day is talking on mobile phone while driving. Act of talking on phone occupies major portion of brain and the smaller part handles the driving skills. This division of brain hampers reaction time and ability of judgement. This becomes one of the reasons of crashes. One should not attend to telephone calls while driving. If the call is urgent one should pull out beside the road and attend the call. Some of the distractions on road are:

1. Adjusting mirrors while driving
2. Stereo/Radio in vehicle
3. Animals on the road
4. Banners and billboards.

The driver should not be distracted due to these things and reduce speed to remain safe during diversions and other kind of outside distractions.

### **Red Light jumping**

It is a common sight at road intersections that vehicles cross without caring for the light. The main motive behind Red light jumping is saving time. The common conception is that stopping at red signal is wastage of time and fuel. Studies have shown that traffic signals followed properly by all drivers saves time and commuters reach destination safely and timely. A red light jumper not only jeopardizes his life but also the safety of other road users. This act by one driver incites other driver to attempt it and finally causes chaos at crossing. This chaos at intersection is the main cause of

traffic jams. Eventually everybody gets late to their destinations. It has also been seen that the red light jumper crosses the intersection with greater speed to avoid crash and challan but it hampers his ability to judge the ongoing traffic and quite often crashes.

### **Avoiding Safety Gears like seat belts and helmets**

Use of seat belt in four-wheeler is now mandatory and not wearing seat belt invites penalty, same in the case of helmets for two wheeler drivers. Wearing seat belts and helmet has been brought under law after proven studies that these two things reduce the severity of injury during accidents. Wearing seat belts and helmets doubles the chances of survival in a serious accident. Safety Gears keep you intact and safe in case of accidents. Two wheeler deaths have been drastically reduced after use of helmet has been made mandatory. One should use safety gears of prescribed standard and tie them properly for optimum safety.

**Table 1**  
**Reasons Leading to Road Accidents**

<b>Drivers</b>	<b>Pedestrian</b>	<b>Passengers</b>
<ul style="list-style-type: none"> <li>• Over-speeding,</li> <li>• rash driving,</li> <li>• violation of rules,</li> <li>• failure to understand signs</li> <li>• fatigue,</li> <li>• alcohol</li> </ul>	<ul style="list-style-type: none"> <li>• Carelessness,</li> <li>• illiteracy,</li> <li>• crossing at wrong places moving on carriageway,</li> <li>• Jaywalkers</li> </ul>	<ul style="list-style-type: none"> <li>• Projecting their body outside vehicle,</li> <li>• by talking to drivers, alighting and</li> <li>• boarding vehicle from wrong side travelling on footboards,</li> <li>• Catching a running bus</li> </ul>
<b>Vehicles</b>	<b>Road Conditions</b>	<b>Weather conditions</b>
<ul style="list-style-type: none"> <li>• Failure of brakes or steering,</li> <li>• tyre burst,</li> <li>• insufficient headlights,</li> <li>• overloading</li> <li>• projecting loads</li> </ul>	<ul style="list-style-type: none"> <li>• Potholes,</li> <li>• damaged road,</li> <li>• eroded road merging of rural roads with highways,</li> <li>• Diversions,</li> <li>• illegal speed breakers</li> </ul>	<ul style="list-style-type: none"> <li>• Fog, snow,</li> <li>• heavy rainfall,</li> <li>• wind storms,</li> <li>• hail storms.</li> </ul>

*(Source: Compilation from the author)*

### **DETRIMENTAL EFFECTS OF TRAFFIC ON ENVIRONMENT**

1. Safety
2. Noise
3. Land Consumption
4. Air Pollution
5. Degrading the Aesthetics.

### **PREVENTIVE MEASURES FOR ACCIDENTS**

1. Education and awareness about road safety
2. Strict Enforcement of Law
3. Engineering:
  - (a) Vehicle design
  - (b) Road infrastructure

The Psychological Impact of the respondents post the road accidents are collected from the respondents. In terms of the psychological problems, the suffering, nature, the days suffered, details

of treatment, the impact on the family members, rehabilitation process, the economic support received and others are collected in the study.

Sociological research has hitherto devoted hardly significant space to road accidents causes and consequences even though it has been the slightly visible human tragedies in terms of loss of human life injuries leading to physical, psychological, emotional and social challenges.

## REVIEW OF LITERATURE

**Dinabandhu Mahataa (2019)** analyses the trends and patterns of RTAs in India during 2000–2015. It portrays the pattern of RTAs in major Indian cities in 2015. Every day 1374 road traffic accidents (RTAs) and 400 deaths take place in India. Accordingly, the number of deaths in RTAs would increase to 662 persons per day in 2030 and will not begin to decline until 2042, among other things, this poses serious public health and challenge. The exponential growth rate curve of the number of RTAs shows upward trend during 2000–2015 in India. The spatial analysis of severity shows that there is no direct link between the number of accidents and the severity. The city-wise analysis of RTAs by the vehicle involved, age of the persons and timing of accidents shows a varying pattern across the cities. The results suggest for city-based strategies to reduce the RTAs, injuries, and deaths, under the umbrella of national policy (**Dinabandhu Mahataa, 2019**)

**Mishra (2018)** studies linear the trend mathematical model based on time series to forecast the of number of road accidents in five Indian states namely Uttar Pradesh, Tamil Nadu, Maharashtra, Karnataka and Rajasthan. This study shows trend analysis based on the traffic accident data for the years 2017 and 2018. Shows the Road accidents are negatively related to urbanization, motorization, and expansion with road length. Now a day, Road accidents are recognized worldwide as a major problem for people health. Road accidents are one of the main reasons for deaths and disabilities. This imposes the huge socio-economic cost. In India, road accidents are one of the most important causes of death and health loss.

**Shantajit (2018)** gives the importance of the “Golden Hour” in giving adequate treatment to the accident victim in saving the injured should be highlighted to both the vehicle users and the community. There should be provision of medical care/first aid care facilities on highways and busy roads as well as provision of ambulances and trained health personals in shifting and transporting the injured person to nearby hospitals for treatment (**Shantajit, 2018**).

## RESEARCH METHODOLOGY

This paper is basically descriptive and analytical in nature. In this paper an attempt has been made to analyze the psychological Impact of road accidents on the victims in Bengaluru city. The data used in both the primary and secondary sources according to the need of this study.

## ANALYSIS AND INTERPRETATION OF PRIMARY DATA

The primary data is collected from 300 sample respondents are chosen from fatal and non-fatal accident cases reported in the city of Bengaluru.

**Table 2**  
**Suffering From Psychological Problem Due to Accident**

Suffering from Psychological Problem	Fatal		Non-Fatal	
	N	%	N	%
Yes	83	55.3	140	93.3
No	0	0.0	10	6.7
Not applicable	67	44.7	0	0.0
<b>Total</b>	<b>150</b>	<b>100.0</b>	<b>150</b>	<b>100.0</b>

Beyond the enormous suffering they cause, road traffic crashes can drive a family into poverty as crash survivors and their families struggle to cope with the long-term consequences of the event, including the cost of medical care and rehabilitation and often funeral expenses and the loss of the family breadwinner. Road traffic injuries also place a huge strain on national health systems, many of which suffer from inadequate levels of resources. Road accidents not only impose huge economic losses representing between 1-3% of annual Gross Domestic Product in most countries but also causes great emotional and financial stress to the millions of families affected. Road traffic injuries cause emotional, physical and economic harm. There is a moral imperative to minimize such losses. Road traffic injuries put significant strain on families. For everyone killed, injured or disabled by a road traffic crash there are many others deeply affected.

Many families are driven into poverty by the cost of prolonged medical care, the loss of a family breadwinner, or the extra funds needed to care for people with disabilities. Road crash survivors, their families, friends and other caregivers often suffer adverse social, physical and psychological effects.

The study reveals that 55.3% of the respondents in fatal cases and 93.3% of the respondents in non-fatal cases contend the sufferings from psychological problems post the road traffic accident.

**Table 3**  
**Nature of Psychological Problem Suffered**

Nature of Psychological Problem Suffered	Fatal		Non Fatal	
	N	%	N	%
Depression	16	14.68	13	11.40
Anxiety	18	16.51	16	14.04
Depressive Mood	13	11.93	17	14.91
Post-Traumatic Stress Disorder (PTSD)	26	23.85	19	16.67
Adjustment Disorder	18	16.51	22	19.30
Phobias	18	16.51	27	23.68
<b>Total</b>	<b>109</b>	<b>100</b>	<b>114</b>	<b>100</b>

After road traffic crashes a lot of changes are observed in the Psychological factors of the victims there include phobias, post-traumatic stress disorder and anxiety, as well as behavioural problems. Subjective measures concern principally the psychological effects of crash involvement on quality of life, and sleep interruption from crash re-enactment dreams and PTSD in some cases are the types of psychological outcomes are recorded in the study.

Six types of psychological problems are identifies and recorded depression is experienced by 14.68% of respondents in the fatal and 11.40% of the respondents in non-fatal cases. Anxiety is experienced by the total of 16.51% of the respondents in fatal cases. Depressive mood is contended by a total of 11.4% of the respondents in non-fatal cases.

**Table 4**  
**Days suffering from Psychological Issues**

Days suffering from psychological Issues	Fatal		Non-Fatal	
	N	%	N	%
1 week - 15 days	49	32.67	46	30.67
1 months - 2 months	48	32.00	65	43.33
3 months - 4 months	12	8.00	2	1.33
5 months - 6months	1	0.67	0	0.00
Not applicable	40	26.67	37	24.67
<b>Total</b>	<b>150</b>	<b>100</b>	<b>150</b>	<b>100</b>

The knowledge of both the immediate and the long-term physical and psychological have attributable to road traffic crashes to victims and their family is inclusive. The study investigated a number of risk factors social impacts arising from road traffic crashes for the RTA victims, finding variations in impacts across various socio-demographic traits of the victims.

The severely injured crash victim, the family of the seriously injured driver and the family of victims who died in the crash (RTF victims) were all found to be rather seriously traumatized as a group, without great difference of people associated with the RTF event.

The study explored the days that the respondents have suffered psychologically. For fatal and for non-fatal injuries, the interactions the implications for families and individuals indicate that 49 respondents in the fatal category have given it as about 15 days. 8% of the respondents in fatal cases and 1.33% of the respondents in non-fatal cases indicate the suffering for 3-4 months. One third of the respondents in non-fatal category are treated for a time period of 1 week – 15days.

**Table 5**  
**Suicidal Thoughts in Family**

Suicidal thoughts in family	Fatal		Non-Fatal	
	N	%	N	%
Yes	56	37.33	62	41.33
No	94	62.67	88	58.67
<b>Total</b>	<b>150</b>	<b>100</b>	<b>150</b>	<b>100</b>

In reality, RTIs has a major impact on the poor and middle class society of India as they are killed, injured and disabled in large members; do not have access of quality care, do not receive timely compensation; are unable to work and generate; and hence lead poor quality of life. This economic burden and impact indicates the seriousness of the problem and the consequent difficulty in leading life after the accident. The majority of the survivors with moderate and severe grades of injuries experience lifelong psychological impact and have a poor quality of life. Sometimes the economic loss leads to suicides, attempt to suicide and suicidal ideators and violence at home resulting in homicides.

When someone in a poor family is injured and is bed ridden at home or the hospital, the whole family gets involved in the care of the patient. This result in the loss of daily wages, losing income; children may not go to school; and older family members may spend less time in the care of children and infants. The household has to cope with the time and financial demands of the situation and this can have a permanent effect on the health of children and infants in the family. This can be the result of loss of income, less attention, worsening hygiene at home, etc. Sometimes they may lose hope to recover from the crisis and the suicidal tendencies crop from the hopeless situation. A total of 37.33% of the respondents in fatal and 41.33% of the respondents in Non-fatal cases combined have indicated the suicidal thoughts having cropped up in the minds of the family members.

**Table 6**  
**Treatment Taken for Psychological Problem**

Treatment Taken for Psychological Problem	Fatal		Non-Fatal	
	N	%	N	%
Yes	8	5.33	8	5.33
No	142	94.67	142	94.67
<b>Total</b>	<b>150</b>	<b>100</b>	<b>150</b>	<b>100</b>

Impact of RTI on families and their changed circumstances, including work and caring roles, has been assessed in the present study. The survey explored issues related to patients' experiences post-crash including impact of the traffic crash on their life and the lives of their family members, access



to healthcare, health insurance and other services, as well as other factors that impact on recovery, such as return to work and carer responsibilities. This is chiefly a qualitative aspect of the study. Families of participants who have died during the study period due to their injuries have been covered, to ensure the wider impact of fatal injuries is included. The psychological issues are but inevitable. 5.33% of the respondents each in both the categories have indicated to have undergone the psychological treatment. The majority of the respondents as they lack the finance necessary for the same are not treated for the psychological problems.

**Table 7**  
**Suffering from Psychological Problem**

Suffering from Psychological Problem	Fatal		Non-Fatal	
	N	%	N	%
Yes	117	78.0	141	94.0
No	1	0.7	9	6.0
Not applicable	32	21.3	0	0.0
<b>Total</b>	<b>150</b>	<b>100.0</b>	<b>150</b>	<b>100.0</b>

The resulting psychosocial disabilities affect all areas of an individual's life ranging from problems in concentration, memory, communication, vocational areas extending to an individual's and family life(WHO, 1995).

The study investigated the psychosocial consequences and coping strategies among the accident victims in Bangalore. Following the road traffic accident both drivers and passengers showed a significant decline of their well-being. This resulted in a consequential psychological problems. 78% of the respondents in the fatal cases and 70.67% of the respondents in the non-fatal cases contend to be suffering from psychological problem.

**Table 8**  
**What Type of Mental Health Problem Affect the Family Members?**

What Type of Mental Health Problem Affect the Family Members?	Fatal		Non-Fatal	
	N	%	N	%
Depression	42	28.00	38	25.33
Anxiety	28	18.67	39	26.00
Adjustment Disorder	39	26.00	24	16.00
Phobia	41	27.33	49	32.67
<b>Total</b>	<b>150</b>	<b>100</b>	<b>150</b>	<b>100</b>

Since a very large number of poor households depend on daily wages and temporary jobs, don't have health insurance, or the assistance of social welfare schemes, a serious injury can result in permanent reduction of income. In cases of prolonged treatment or death of the victim, the family may end up selling most of their assets and land and getting trapped into long-term indebtedness. Investment in treatment of a seriously ill family member stops only when all assets get sold. It is clear that the outcome of a serious injury or death of a family member in poor communities has many long-term effects, socially, economically and psychologically on all the other family members and the community. Many of these outcomes are permanent and soul destroying for individuals and possibly for the larger community.

The various mental health problems that affected the family members are identified under four categories namely depression, Anxiety, adjustment disorder and phobia. 28% of the respondents in fatal cases and one-fourth of the respondents in non-fatal cases are suffering from depression 27.33% of the respondents in fatal cases have indicated Phobia resulting from the road traffic accidents.

**Table 9**  
**Coping with Psychological Problem**

Coping with Psychological Problem	Fatal		Non-Fatal	
	N	%	N	%
Cope-Up Their Own	48	32	59	39.33
Counseling	102	68	91	60.67
<b>Total</b>	<b>150</b>	<b>100</b>	<b>150</b>	<b>100</b>

Posttraumatic stress disorder (PTSD) is one of the most common psychological consequences for adult road traffic crash (RTC) survivors and can have serious and long-lasting consequences for recovery if left untreated. Sleep disorders and various common acute and chronic medical conditions directly or indirectly affect the quality and quantity of one's sleep or otherwise cause excessive daytime fatigue. The potential contribution of several prevalent medical conditions – allergic rhinitis, asthma, chronic obstructive pulmonary disease, rheumatoid arthritis/osteoarthritis – and chronic fatigue syndrome and clinical sleep disorders – insomnia, obstructive sleep apnea, narcolepsy, periodic limb movement of sleep, and restless legs syndrome – to the risk for drowsy-driving road crashes. The psychological issues result post the road traffic accidents which sometimes leads to suffering among the accident survivors and the dependents.

**Table 10**  
**Recommended Rehabilitation**

Recommended Rehabilitation	Fatal		Non-Fatal	
	N	%	N	%
Yes	34	22.67	35	23.33
No	116	77.33	115	76.67
<b>Total</b>	<b>150</b>	<b>100</b>	<b>150</b>	<b>100</b>

The tolerance and emotional support extended by family members can help speedy recovery. Rehabilitation through post-operative care forms an integral part of overall trauma care. These helps in restoring an individual to his optimum level of function and improve the quality of life. The psychological support from family and medical specialists is necessary at all levels of care. The goal of intervention is to enable the patient to re-establish psychological equilibrium and return to pre-accident functioning, if possible. This can often be accomplished by discussing the motor vehicle accident, offering reassurance, educating the patient about PTSD, emphasizing coping strategies and prescribing medication when indicated. Patients can achieve some control over their symptoms by sharing details of the accident in the safety of the examination room. The family physician may be the first professional to hear a comprehensive account of the events. Patients should be reassured that PTSD is a reaction to the stress of trauma, that it follows a predictable course and that it often resolves with timely intervention. 22.67% of the fatal and 23.33% of the non-fatal cases have been recommended for rehabilitation.





## CONCLUSION

The psychological implications are but imperative after the road accident occurs. The dimensions of the psychological problems are observed from the primary interactions with the sample respondents. The severity of accidents at social impact is understood in the present chapter. The road traffic accidents lead to psychological issues to the people involved in road traffic accidents. The mental health gets severely after the incidents. Sometimes there could be a necessity to go for treatment for the same. Mental and psychological consequences are found out from the sample respondents. The psychological sufferings are analyses. The habitation post the accident is recorded and analyzed.



The details of the support received from the victims and survivors is surveyed. The disruption to the family activities of the victims and the family members is collected

**REFERENCES**

-  WHO. (1995). World health organization. *Critical care and rehabilitation of neurotrauma*.
-  Dinabandhu Mahataa, P. K. (2019). Spatio-temporal analysis of road traffic accidents in Indian large cities. 586–591.
-  Mishra, A. G. (2018). Analysis & Prediction of Road Accident Data for Indian States . *International Journal of Applied Engineering Research*, 1-5.
-  Shantajit, T. C. (2018). Road Traffic Accidents In India: An Overview. *International Journal of Clinical and Biomedical Research* 4 , 36–38.