



**ORIGINAL RESEARCH PAPER**

**Community Medicine**

**AN ANALYSIS OF DISABILITY CERTIFICATE ISSUED FOR ROAD TRAFFIC ACCIDENT PATIENTS IN A TERTIARY CARE CENTRE, CHENNAI, TAMILNADU**

**KEY WORDS:** Road Traffic Accident, Automobile Accidents, Head Injury, Trauma, Disability Following RTA, Disability Certificate, Benchmark Disability

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**ABSTRACT**

**Background:** Road traffic accidents are a leading cause of mortality and morbidity globally and more specifically in India. As per the ministry of road transport and highways report on Road accidents in India in 2018, the incidence of road accidents increased by 0.46% as compared to 2017 claiming over 1.5 lakh lives. This cross sectional study was done to analyse the pattern of disability and mortality in patients admitted after road traffic accidents through disability certificates review in a tertiary care centre of Chennai, Tamilnadu, India.  
**Methods:** This cross-sectional study was conducted between July 2019 and December 2019. A total of 280 study subjects with disability certificates were analysed using non-probability consecutive sampling method. The socio-demographic and injury cum disability survey was done using a structured questionnaire. Data was coded, entered and analysed using SPSS version- 16.  
**Result:** Out of 280 disability certificates, the mean age was 31.80±15.70 years. Majority belonged to 31-50 years age group and gender wise males were majority. Majority of the study subjects had disability causing injuries to the lower extremities followed by injuries to upper limb and head. One on 5 study subjects were in benchmark disability category  
**Conclusion:** Road traffic accidents are more common among male vehicle rider belonging to lower social class and in 31-50 years of age group. Majority of the injury were fracture/dislocation of lower extremities.

**INTRODUCTION**

Road traffic accidents (RTA) are a leading cause of mortality and morbidity globally and more specifically in India<sup>1</sup>. Road traffic injuries are known to cause considerable economic losses to individuals, their families, communities and to nations as a whole. These losses arise from the cost of treatment, out of pocket expenses and lost productivity for those disabled by their injuries. Family members taking care of those injured need to take time off from work and this leads to economic loss too. Road traffic crashes cost most countries 3% of their gross domestic product.

Road traffic accidents are the major reason for disability throughout the world and the incidence is still very high and ever increasing in developed and developing countries. As per the ministry of road transport and highways report on Road accidents in India in 2018<sup>2</sup>, the incidence of road accidents increased by 0.46% as compared to 2017 claiming over 1.5 lakh lives. Various scientific studies have concluded that majority of disabilities in RTAs are because of injuries to the limbs, head, abdomen, chest and spine.

On analysis of disability certificates, we can get a complementary view of temporary or permanent disability<sup>3</sup>. The information derived out of this process can be used to design necessary programmes and rules for the prevention and control of RTAs and minimise the risk of disability and premature death due to RTA.

This cross sectional study was done to analyse the pattern of disability and mortality in patients admitted after road traffic accidents through disability certificates review in a tertiary care centre of Chennai, Tamilnadu, India.

**METHODS**

**Study site:** Department of Physical Medicine and Rehabilitation, Government Kilpauk Medical College, Chennai, Tamilnadu

**Study Design:** Descriptive Cross Sectional Study

**Study Period:** July 2019 to December 2019

**Study Population:** RTA Subjects with disability

**Inclusion Criteria:** All RTA patients presented to the Physical Medicine and Rehabilitation department for disability certificates belonging to either sex

**Exclusion Criteria:** Trauma not related to RTA

**Sampling Frame:** Disability Certificate Registers maintained in the department

**Sampling Methodology:** Non-probability consecutive sampling

**Sample Size:** 280 RTA patients with disabilities

**Procedure:** Structured Questionnaire was used to collect socio-demographic details, injury profile and disability details. Descriptive statistics was done for all collected data using MS Excel 2010 and SPSS Version 16.

**Ethical Consideration:** Ethical clearance was obtained from Institutional ethical committee and informed consent was meticulously obtained from study subjects.

**RESULTS**

A descriptive study was undertaken among the RTA patients with disabilities in Department of Physical Medicine and Rehabilitation, Government Kilpauk Medical College, Chennai, Tamilnadu. Information was collected from 280 study subjects.

In our study majority of the study subjects were in the age group of 41-50 years (25.00%) followed by 31-40 years age group (23.93%). The percentage of males among the study population is 74.29% followed by females (25.71)%. Socioeconomic status revealed that majority of the study subjects belonged to upper lower class (35.71%) followed by lower middle class (29.29%). (Table 1)

Majority of the study subjects were driving their vehicle at the time of RTA (56.07%) and the next most affected were the pedestrians (31.43%). Disability causing RTA injuries among the study subjects were more on the lower limbs (68.76%) followed by upper limb (19.29 and then head injury (7.86%). (Table 1)

As per Rights of Persons with Disabilities Rules, 2017 notified in the Gazette of India by the by the Ministry of Social Justice and Empowerment, all the study subjects were grouped into benchmark and non-benchmark disability categories. Although majority (82.50%) of the patients belonged to non-benchmark disabilities category, there were significant number of the patients who belonged to benchmark disabilities category (17.50%). Among the benchmark disabilities category patients 75.51% were males followed by 24.49% females. (Table 1)

**Table 1. Distribution of RTA Injuries and Disabilities based on Socio-demographic Factors**

Variable	Groups	n (%)
Age	≤ 10 years	3 (1.07)
	11-20 years	15 (5.36)
	21-30 years	57 (20.36)
	31-40 years	67 (23.93)
	41-50 years	70 (25.00)
	51-60 years	37 (13.21)
	61-70 years	25 (8.93)
	71-80 years	6 (2.14)
Gender	Male	208 (74.29)
	Female	72 (25.71)
Socioeconomic Status	Upper Middle	55 (19.64)
	Lower Middle	82 (29.29)
	Upper Lower	100 (35.71)
	Lower	43 (15.36)
Categories of RTA	Driver	157 (56.07)
	Co-passenger	35 (12.50)
	Pedestrian	88(31.43)
Categories of Injuries	Head Injury	22 (7.86)
	Facial Bones and Dental Injury	7 (2.50)
	Clavicle	20 (7.14)
	Upper Limb	54 (19.29)
	Chest	9 (3.21)
	Abdomen	3 (1.07)
	Pelvis	10 (3.57)
	Spine	13 (4.64)
	Lower Limb	190 (67.86)
	Eye	1(0.36)
	Ear	1(0.36)
	Category of Disability	Non Benchmark Disability (20-40%)
Benchmark Disability (≥ 40%)		49 (17.50)

**DISCUSSION**

This study revealed that disabilities due to RTA happen significantly more in 31-50 years age group. Involvement of the middle aged men in RTA could also affect the overall burden to the family, society and development of the country. They are the prime work force and contribute heavily to the economic advancement of the country. This finding is consistent with a study done by [Bhanu Awasth](#) et al, which identified middle age as an important determinant of road traffic accidents<sup>4</sup>.

Results also revealed that study subjects belonging to lower socioeconomic class had higher incidence of RTA disabilities. The same view was echoed in the study done by [sehat et al](#) which expressed that lower economic level was associated with increased incidence and morbidity due to RTA<sup>5</sup>.

In our study, the study subjects more commonly victimised by RTA disabilities are drivers of vehicles and significantly the second most common victimized are the pedestrians. This might be due to lack of proper walker friendly footpaths, encroachments of footpaths by traders, poor awareness of use of footpaths and lack of road sense. Our findings were consistent with results from study by [Badrinarayan Mishra](#)

all3, which quoted that passengers (42.50%) and pedestrians (29.16%) were most affected<sup>6</sup>.

Injuries to the lower extremities seem to be major cause of disability among study subjects affected by RTA. This is due to the fact that no protective accessories or personal protective gear apart from helmet was used by our study subjects. The same view was published by [Bradbury et al](#), which found that most common type of fracture was that of the shaft of the tibia and fibula (231, 43.5%), followed by fractures around the ankle (186, 35.0%)<sup>7</sup>.

We also found that the incidence of benchmark disability (≥40%) was approximately found in one out of five study subjects. Possible explanation for this higher incidence of disability may be due to low road safety awareness, improper attitude towards following personal safety measures, poor vehicle maintenance and over speeding<sup>8</sup>.

To the best of our knowledge, this was the first study in its kind which assessed disability certificates among RTA victims in India. The strengths of this study are the low attrition rate and use of a valid and reliable instrument for disability assessment. On the other hand, the limitations of the study are that the data related to sample was obtained from one institution only.

**CONCLUSIONS**

This study has established that disabilities due to road traffic accidents are more common among male vehicle drivers of lower socioeconomic class belonging to 31-50 years of age group. Majority of the disability causing major injuries were due to fracture/dislocation of lower extremities and approximately 20% belonged to benchmark disability category. This proves that RTA related disabilities are a huge economic burden to the country. This hidden public health problem should be tackled by proper road safety education among students, strict enforcement of motor vehicles act which tackles the issue of road safety in India, proper leg guard installation in vehicles, promotion of driver protective gear and creating pedestrian friendly walk paths.

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