

# Demographic Profile of Pattern of Railway Injuries in Warangal Municipal Limits, A. P.

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## ABSTRACT

Accident is an unexpected, unplanned occurrence which may involve injury or it may be defined as an unpremeditated event resulting in recognizable damage. Railway related injuries are not those uncommon occurrences in forensic practice. Among the varied presentation of injuries, superficial injuries along with fractures were commonly observed. Over the last 15 years many railway accidents have happened in Andhra Pradesh and in India. Following these train accidents, there has been a large amount of public debate about safety management on the Indian railways. These accidents have raised issues regarding the effectiveness of the safety management of the railway system. This paper presents a summary of the results of a preliminary systemic analysis of several rail accidents in and around Warangal City. The present study was conducted in the Department of Forensic Medicine, Warangal Medical College, Warangal, from January 2013 to June 2014 i.e., 18 months, during which the total postmortem cases were 74 occurred in the jurisdiction of the Govt. Railway Police Station, Warangal. The factors taken to enumerate the study are the incidence of deaths month wise, age and sex, marital status, scene of offence and habitat during railway accidents.

**Keywords:** analysis, damage, factors, management, preliminary

## INTRODUCTION

Evolution is never ending process. Mankind has evolved from primates' eras back. The same Human is trying to develop over the yesteryears by inventing things, which have mechanical advantages. One of them are the Locomotives .Every comfort has some impending dangers within them. Similarly, the moving trains are also proving fatal.<sup>1</sup>

The structure and designing of the train is made so safe that it is not easily possible to sustain injuries by the train, unless there is gross negligence or willful act is made to have such injuries. The areas of the movement of train are also made safe by providing

several protective measures but still deaths are occurring on the railway tracks. Several commissions are made by the Governments to look in to these factors which are unsafe for public use. In spite the people living near and around the tracks are so negligent and erratic in using the track, it is always unsafe for these people.<sup>2</sup>

The train tracks are used for open air defecation. They are used for disposing the waste. It becomes a playground for the children. Agriculture is done in between the tracks. Animal grazing done on the tracks. The most unfortunate part is the train tracks are used by the male prostitutes especially near the railway stations. All these activities increase the movement of the people near the track. It is always dangerous irrespective the amount of safety precautions that are adopted to prevent accidents on the track. People living near to the train tracks, find railway line as their destination when they take a decision to commit suicide. This is because of the accessibility, assured death and lonely places present on the tracks. Railway tracks becomes the place for disposing the dead bodies of the homicidal victims. This type of acts are done to conceal the crime.

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## MATERIALS AND METHOD

This study has been carried out from January 2013 to June 2014 from the ethical committee of Kakatiya Medical College, Warangal, Andhra Pradesh.

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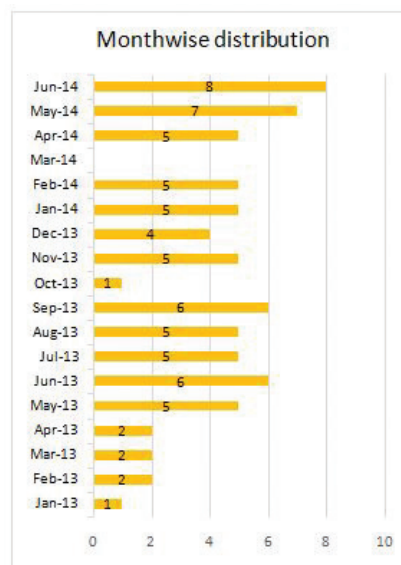
The records maintained for each case in this department are post mortem requisition given by Investigating Officer in their inquests, treatment records from hospital if treated, history from blood relatives and friends, observation of the circumstances at the scene by visiting the scene of offence, photographs taken from the scene of offence and findings in the Post mortem Examination certificates.

The materials used are inquest Reports, inpatient Case sheets, per usual of police papers, data from district crime records bureau (DCRB), Warangal. Records from Medical Record Section of Kakatiya Medical College, Warangal, Andhra Pradesh. Post mortem Reports of all cases, Information collected from the Investigation Officer, Relatives and friends of the deceased accompanying dead bodies.

## OBSERVATIONS AND RESULTS

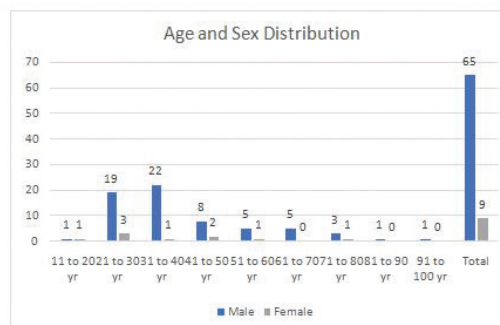
Warangal is one city which is well connected to all parts of the country by railway line. Kazipet is one of the biggest Railway Junctions. Govt. Railway Police Station is situated in Warangal Railway station and the outpost of this Police Station is located in Kazipet. The number of accidents in the jurisdiction of these stations is also increasing day by day. The same amount of load will be reflected on to the mortuary staff working in this jurisdiction.

There are 74 deaths occurred in the jurisdiction of the Govt. Railway Police Station, Warangal. All of them are subjected to Post mortem examination in the mortuary of Kakatiya Medical College, Warangal from January 2013 to June 2014.



**Figure 1: Month wise distribution of Railway related deaths**

In this study from Figure No. 1 it can be cleared that there are 8 deaths in the month of June 2014, 7 deaths in May 2014, 6 deaths in the months of June and September 2013, 5 deaths in the months of May, July, August and November 2013, also 5 deaths in the months of January, February and April 2014. 4 deaths occurred in December 2013. 2 deaths occurred in the months of February, March and April of 2013. One death occurred in the months of January 2013 and October 2013. There are no deaths reported in the month of March 2104. The frequency of occurrence of deaths due to railway related injuries over these 18 months is not following any pattern. There are no seasonal variations observed in this period. However, the months of January to April are showing less incidence of deaths and relatively a greater number of deaths are occurring in the months May and June.



**Figure 2: Age and Sex distribution**

In this study on perusal of Figure No. 2, The age groups in which a greater number of deaths occurred are 21 years to 40 years, where 45 (60.81%) lives are taken by the railway. The next vulnerable age group is

41 years to 50 years where 10 (13.51%) deaths occurred. This is followed by 51 years to 60 years age group, in which 6 (8.11%) deaths occurred. In 61 years to 70 years age group 5 (6.75%) deaths, in 71 years to 80 years age group 4 (5.41%) deaths, in 11 years to 20 years age group 2 (2.70%) deaths occurred. There are one (1.35%) death in the age groups of 81 years to 90 years and 91 years to 100 years. There are no railway related deaths seen in children less than 10 years of age. Among these people males are 65 and females are 9 giving a ratio of males to females as 7.22: 1.

**Table 1: Marital status of the deceased**

Marital status of the deceased	Sex		Total n (%)
	Male	Female	
Unmarried	10	2	12 (16.22)

**Table 2: Time of occurrence and Scene of Offence**

Time of Occurrence	Scene of offence				Total n (%)
	On the Platform	Near Railway Station	Near Village/Town	Deserted area	
Early morning	0	0	0	1	1 (1.35)
Morning	1	1	0	15	17 (23.0)
Afternoon	0	0	0	9	9 (12.2)
Evening	0	2	1	8	11 (14.85)
Night	2	2	3	29	36 (48.6)
Total	3 (4.05)	5 (6.75)	4 (5.4)	62 (83.8)	74 (100)

Table No. 2 indicates, one-person (1.35%) fell down from the moving train in the early morning hours i.e. between 4 am and 7am. 17 (23.0%) people died in the morning hours i.e. from 7 am to 12 noon. 9 (12.2%) persons died in the afternoon i.e. between 12 noon and 4 pm. 11 (14.85%) persons died in the evening hours i.e. from 4 pm to 7 pm. 36 (48.6%) persons are died in the night hours i.e. from 7 pm to 4 am.

**Table 3: Habitat of the deceased**

First seen dead by	Habitat				Total n (%)
	Rural	Sub-Urban	Urban	Unknown	
Known person	2	1	0	0	3 (4.05)
Unknown person	0	0	0	0	0
Railway employee	24	9	8	30	71 (95.95%)
Total	26 (35.14%)	10 (13.51%)	8 (10.81%)	30 (40.54%)	74 (100%)

Table No. 3 indicates, 3 (4.05%) of them died near the platform of the railway station. 5 (6.75%) died in the vicinity of the railway station. 4 (5.40%) are found died on the track near to the village / town. Remaining 62 (83.8%) persons are found to die in the lonely and deserted places on the railway tracks.

*Conted...*

Married	29	1	30 (40.54)
Widowed	2	0	2 (2.70)
Unknown	24	6	30 (40.54)
Total n (%)	65 (87.84)	9 (12.16)	74 (100)

Table No.1 shows that, out of 74 deaths, 30(40.54%) of the deceased are married, 12(16.22%) are unmarried and two(2.70%) are widowed. The marital status of 30 (40.54%) persons is not known as they are bought as unknown when they are subjected to Post mortem examination.

In this study, 14 (18.92%) of the total deceased there are illiterates. 16 (21.62%) of them have primary education, 9 (12.16%) have secondary education, 4 (5.41%) of them are graduates and one person (1.35%) is an Engineer in irrigation department. Remaining 30 (40.54%) persons' educational status is not available.

## DISCUSSION AND SUGGESTIONS

Death is one inevitable event the human life, can result from natural or unnatural means. It can be result of injuries sustained. Injuries caused by a fast-moving object can result in death. Especially trivial injuries produced by fast moving trains can result in fatality.

According to Bernoulli's Principle, when an object moves a greater velocity, it produces a low pressure in its path. Trains moving greater speed also produce a low pressure in their path and suck the objects towards them because they are placed in high pressure area and result in fatal injuries.<sup>9</sup> That is why a red painted area is made on the margins of the platform of Railway stations, so that people should not enter in to it when a train comes on to the platform.

In spite of the precautions and the preventive measures adopted by the Railway authorities, still many deaths are occurring on the track because of the railway related injuries.

The evidence is clearly shown in the present study by getting 74 deaths in whom railways (Trains) Produced injuries resulting in the death of persons. The annual incidence of railway related deaths is coming to 2.65% (44 deaths in the year 2013 to the total of 1661 Post mortem Examinations done), this is almost equal to the study made in Germany and much less in comparison to the rest of south east Asian countries.<sup>3,4,5</sup> This is because the magnitude of railway related accidents may be same throughout the world, if the track is accessible to the people, but in Warangal geographical area, the suicidal methods adopted differ from rest the habitat. In this area people are committing suicides by poisoning more than other methods.

There is no seasonal variation observed in the present study, a little increase in the incidence during summer may because people use railways more in the vacation time i.e. summer. More number of deaths is occurring in young aged persons i.e. from 21 to 40 years of age, with the mean age 34.5 year. This is less than the age group observed in America which is 39 years.<sup>6</sup> This shows the economic loss to the nation because of the person losing their lives in their productive age group.

The male to female ratio is 7.22. This is much higher in comparison to western countries where it ranging from 2.54 to 2.70.<sup>7,8</sup> This can be due to selection of the method

by the gender as it amounts violent deaths. Marital status cannot be taken as a parameter to read the impact of railway deaths. However, the maximum numbers of person are from married age group and many of them are married. However, many dead bodies came as unknown, hence marital status is not known at the time of autopsy.

Low socio-economic status and the illiteracy have their effects by showing increased incidence in the combination these factors, which took 14 (31.8%) lives among the 44 identified. 26 persons of the total 44 identified deceased are from rural areas. This needs a special concern that, the track needs fencing in the rural areas. 62 persons died in deserted areas, and 36 persons died in the night, which shows that, the railway track needs a vigilance to reduce these deaths.

As many as 71 dead bodies are first seen by the railway employees. This is because the deaths are witnessed by the drivers, are the gang-men or key-men making rounds on the track. Suicides are common in younger age groups and accidents are common in elderly people. More suicides occurred in the age group of 21 to 50 years and more accidents occurred in 51 to 90 years of age groups.

### Suggestions:

1. All railway related deaths are invariably fatal in nature and are preventable by strict vigilance of railway staff on the track.
2. There should be proper vigilance on the railway tracks about the suspiciously moving persons on the track, by the gang men.
3. Impatient driving of the vehicle across the track should be watched out by CCTVs footages and corrected time to time

Trespassing should be penalized with heavy penalties, to discourage the movements on the track

1. Proper fencing should be made in the areas of movement of people
2. Grazing domestic animals on the railway tracks should be discouraged
3. suicidal spots on the track should identified and properly protected
4. Infrared beams should be provided to identify the movement of the people on the railway track

5. Platforms should be provided with proper height to boarding and alighting.

### CONCLUSION

Most of the railway fatalities were accidental in nature and in the bread earning age group particularly among the males. The increasing number of population, overcrowding in the trains, reckless and careless behavior of the passengers, pedestrians and the train drivers towards safety norms are the constant causes of railway fatalities. The high levels of the railway fatalities make a strong case for the necessary accident control interventions. Public as well as the railway authorities must take some measures to bring down these fatalities. People must follow some easy set of laws like do not travel on footboard, do not enter or get down from running trains, do not try to cross the level crossing gate when it is closed, be alert and reduce your speed while approaching railway unmanned level crossing, never guess the speed of the train and adhere to the set norms of railway safety to curb this menace. By comparing the data of the present study of 2013 with that of the previous studies, the incidence of railway accident cases are gradually increasing in number day by day.

1. Male predominates the females, Male to female ratio is 7.22 : 1
2. The frequently involved age groups are 21 years to 40 years
3. Less incidence is seen in extremes of age groups, no death in the age group of less than 10 years
4. 30 (40.54%) of total dead bodies are unidentified at the time of conducting inquest and autopsy. 12 of them are identified in the due course of time
5. Married persons (30-40.54%) are victimized more than unmarried (12-16.22%).
6. People from low socio-economic strata, rural background are involved more in number
7. Literacy did not play significant role causation of deaths due to railway injuries
8. Night time deaths (36-48.6%) are more, followed by deaths occurring in the morning (17-23%), evening (11-14.85%) and afternoon (9-12.2%). Early morning death is only one (1.35%).
9. Very few cases of death are witnessed by the known people. Most of the dead bodies are first seen by railway employees.

10. No person in the present study is intoxicated with alcohol or drugs

Accidents (23-31.08%) are reported to be more than suicides (51-68.92%)

**Ethical Clearance:** This study has been carried out in the year 2013, after from the ethical committee of Kakatiya Medical College/General Hospital, Warangal.

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**Conflict of Interest:** Nil

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