



## A study on environmental factors influencing road traffic accident victims in district hospital, Karimnagar

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### Abstract:

Road traffic injuries are a major but neglected global public health problem, requiring concerted efforts for effective and sustainable prevention. Of all the systems that people have to deal with on a daily basis, road transport is the most complex and the most dangerous. A cross sectional study was conducted to find out environmental factors influencing RTA victims admitted in district hospital, Karimnagar. A total of 370 road traffic accident victims were interviewed by the end of study period. In this study rainy weather recorded more (60.7 per cent) accidents, and bright light favored for 78.1 per cent of accidents and this could be because of spoiling of roads due to rains and density of traffic in day light respectively.

**Keywords:** Environment, Karimnagar, RTA

### Introduction

Accident represents a major epidemic of non-communicable disease in the present century. World health organization has defined accidents as “an unpremeditated event resulting in recognizable damage” [1]. Road Traffic Accidents (RTA) are a major but neglected public health challenge that requires concerted efforts for effective and sustainable prevention. Of all the systems with which people have to deal every day, road traffic systems are the most complex and the most dangerous [2].

In 2004, World Health Day, organized by the World Health Organization (WHO), for the first time had been devoted to Road Safety. Millions of others sustain injuries, with some suffering permanent disabilities. No country is spared this toll in lives and suffering, which strikes the young particularly. Enormous human potential is being destroyed, with also grave social and economic consequences. Road safety is thus a major public health issue throughout the world [2].

Spectrum of accidents are Road traffic accidents, industrial accidents, domestic and peri-domestic, railway accidents, agricultural accident, intentional or suicidal

injuries, etc.. But the epidemics of road traffic accidents are leading cause of mortality and morbidity. The alarming increase in mortality and morbidity owing to road traffic accidents has been a matter of great concern globally [3].

However, incorporating new technology has not come about without cost. Environmental contamination, urban stress and deteriorating air quality are directly linked to modern land transport systems. Above all, transportation is increasingly associated with the rise in road accidents and premature deaths, as well as physical and psychological handicaps. Losses are not limited to reduced worker productivity and trauma affecting a victim's private life. Equally significant are the rising costs in health services and the added burden on public finances [4].

Poor road conditions amount for a high percentage of road traffic accidents each year including deaths. Adverse weather conditions make driving dangerous. It also makes roads sometimes virtually impassable to drive along. The weather causes all sorts of wear and tear to road surfaces, by wiping away road markings and wearing away the top layer of the road that

helps with the traction of tires. Sometimes accidents are caused by bad road design. This is when a part of the road or traffic control has been poorly placed or designed and can lead to increased accidents in the area. This could be anything from poorly placed signs blocking your view of incoming traffic at intersections to dangerous turnings off of busy roads. Sometimes accidents caused by poor road design will mean that the government or council will be liable [5].

## Material and Methods

A cross sectional study was conducted for a period of one year from October 2011 to August 2012 to evaluate study the influence of environmental factors among the RTA victims admitted in emergency department of government district hospital, Karimnagar. A total of 402 RTA cases reported. RTA was defined as any injury resulting from road traffic crash irrespective of the severity and outcome. All the patients admitted due to road traffic accidents, able and willing to provide informed consent were included in this study. People not willing to give consent for participation were excluded from study.

The subjects were requested to answer the questionnaire to the best of their knowledge to avoid missing responses. Cases with greater than 20% of missing data were excluded from analysis. A total of 402 cases were approached to participate in the study, out of 402 cases, 370 agreed to participate in the study and consented. Among 370 cases, responses from 366 cases were used for data analysis and the remained were excluded due to incomplete response. Ethical approval was taken from the Institutional Ethical Board. Categorical variables were coded for analysis and numerical variables were entered as such. Inferential statistical methods used included chi-square test and fisher's exact test. Data analysis was done using Epi-Info (version-7) software. Information of unconscious patients was collected from their relatives or parents or attendants. After regaining the consciousness the patient was approached and re interviewed. The medico legal records and case sheets of the victims were referred for collecting additional information and where necessary for cross checking.

## RESULTS

Based on the type of the vehicle, highest number 153 (41.8%) of RTA victims were from two wheeled motorised vehicle (TMV) accidents, 88 (24.0%) from four wheeler accidents, 59 (16.1%) from bicycle (non-motor) accidents, 36 (9.8%) from three wheeler motor

vehicle accidents, and 30 (8.2%) from other type of motor vehicle accidents respectively.

**Table 1: Type of Vehicle during Road traffic accident**

Type of Vehicle	Frequency	Percent
Bicycle	59	16.1
Two wheeler	153	41.8
Three wheeler	36	9.8
Four wheeler	88	24.0
Others	30	8.2
Total	366	100.0

Table 2 shows that 84 (23.0%) of minor accidents and 138 (37.7%) of major accidents with a total severity of 222 (60.7%) cases had occurred during rainy season followed by minor 49 (13.4%), and major 95 (26.0%) accidents with a total severity of accidents 144 (39.3%), during dry weather .there was no statistically significant association observed between these variables

Table 3 shows the association between the light conditions and the severity of accidents. 107 (29.2%) of minor accidents and 179 (48.9%) of major accidents with a total number of 286 (78.1%) had occurred at bright light, followed by 26 (7.1%) minor and 54 (14.8%) major accidents with a total severity of 80 (21.9%) accidents at dark or dusky visibility. There was no statistical significant association ( $p$  value =0.419) observed between the light and severity of accidents.

Table 4 observed no significant association between the severity of accidents and the width of the road.

## Conclusion

In this study rainy weather recorded more (60.7 per cent) accidents, and bright light favored for 78.1 per cent of accidents and this could be because of spoiling of roads due to rains and density of traffic in day light respectively.

**Table 2: Weather condition versus severity of accidents**

Variable			Severity of the accident		Total
			Minor accident	Major accident	
Weather	Rainy	Number	84	138	222
		%	23.0%	37.7%	60.7%
	Dry	Number	49	95	144
		%	13.4%	26.0%	39.3%
Total		Number	133	233	366
		%	36.3%	63.7%	100.0%

Chi square = 0.548, P value = 0.459

**Table 3: Light conditions versus severity of accidents**

Variable			Severity of the accident		Total
			Minor accident	Major accident	
Light	Bright	Number	107	179	286
		%	29.2%	48.9%	78.1%
	Dark	Number	26	54	80
		%	7.1%	14.8%	21.9%
Total		Number	133	233	366
		%	36.3%	63.7%	100.0%

Chi square = 0.652, P value = 0.419

**Table 4: Road conditions versus severity of accidents**

Variable			Severity of the accident		Total
			Minor accident	Major accident	
Road Condition	Narrow road	Number	12	24	36
		%	3.3%	6.6%	9.8%
	Single road	Number	79	131	210
		%	21.6%	35.8%	57.4%
	Double road	Number	42	78	120
		%	11.5%	21.3%	32.8%
Total		Number	133	233	366
		%	36.3%	63.7%	100.0%

Chi square = 0.382, P value = 0.826

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