Original Article

TRENDS OF TWO-WHEELER ACCIDENTS IN INDIAN AIR FORCE

LS Bhatnagar, MK Mishra, GN Kunzru

There has been a rising trend in accidents involving two-wheeler vehicles among IAF personnel for the past few years. During the period of study from 01 Jan 1984 to 31 Dec 1986, the number of accidents increased from 170 in 1984 to 219 in 1985 and 236 in 1986 respectively. The rate of accidents, i.e., accidents per one thousand vehicles was found to be 16.72, 19.09 and 17.13 for each year respectively,. the change being stastically not significant. The incidence of accident was higher in the younger age group and more outside the campus area.

Keywords: Road traffic accidents, accident rate, ground accidents in airorew.

It is over 100 years since the German inventor Gottlieb Daimler produced the first commercial automobile. Since then motor vehicles have grown from being the play things of the rich few to constituting a transport system that plays an essential part in the lives of most people on this planet. The benefits in terms of convenience and personal mobility have been immense, but there is a price to pay in terms of the lives lost and suffering caused through accidents.

The problem of road accidents which takes heavy toll of human lives besides inflicting injuries and causing property damage is assuming alarming proportions in all countries of the world and India is no exception. During the period 1960-1980, the number of road accidents increased from 55,478 to 1,47,651 the increase being 8.3% per annum (1). The fatality rate per 10,000 motor vehicles was 59.0 in India as compared to 3.9 in UK, 3.3 in USA and 2.0 in Japan. Similarly, the injury rates per 10,000 motor vehicles were higher in India as compared to the other three developed countries (2).

With the increasing use of private two-wheelers, the morbidity statistics slowly started showing the impact of this mode of transport resulting in larger number of personnel suffering from injuries, disability and death. The present retrospective study was aimed at determining the real impact of accidents when compared with the number of users of two-wheeler vehicles.

Material and Method

Material for the study was taken from the Quarterly Health Reports from various Indian Air Force (IAF) units to their respective Command Headquarters. Information on the two-wheelers owned by officers and airmen was collected for the period 01 Jan 1984 to 31 Dec 1986. The data on all types of two-wheeler vehicle accidents in IAF for the same period were also analysed. Accident rates per 1000 two-wheeler vehicles were calculated.

Results and Discussion

Detailed analysis of the data is presented in Tables I to X. From Table I, it is seen that there is a rising trend in the number of accidents as well as number of persons injured during the period of study, with a total of 709 persons injured in 625 accidents. Table II gives the distribution of accidents amongst the aircrew officers and airmen and their counterparts in the ground duty branches/ trades. Accidents involved ground duty personnel much more than aircrew personnel. While incidence amongst the officers showed a gradual decline, there was an upward trend amongst the airmen which may be due to

Table-I
Trend of Two-Wheeler Road Accidents in IAF (1984-86)

Year	No. of Accidents	No. of Personnel Injured			
		Officers	Airmen	Families/Civilians	Total
1984	170	79	99	8	186
1985	219	85	157	17	259
1986	236	65	181	18	264
Total	625	229	437	43	709

Table-II
Distribution of Accident Victims

Year	Aircrew				Ground Duty				Total
	Officers		Airmen		Officers		Airmen		
	No	%	No	%	No	%	No	%	
1984	26	15.29	1	0.59	53	31.18	90	52.94	170
1985	25	11.42	2	0.91	53	24.2	139	63.47	219
1986	21	8.9	2	0.85	41	17.37	172	72.88	236
Total	72	11.52	5	0.8	147	23.52	401	64.16	625

Table-III
Distribution of Accident Rates

Year	No. of accidents	No. of vehicles	Rate/1000 vehicles
1984	170	10,170	16.72
1985	219	11,471	19.09
1986	236	13,773	17.13

Table-IV
Accident Rates in the Various IAF Commands

Command	No of vehicles			No of accidents			Rate/1000 vehicles		
	1984	1985	1986	1984	1985	1986	1984	1985	1986
Western	2441	2632	3002	48	60	67	19.66	22.80	22.32
South Western	1102	1542	2403	25	38	48	22.69	24.64	19.98
Central	1604	1307	1476	19	21	26	11.85	16.07	17.62
Maintenance	1553	1896	2338	32	32	35	20.85	16.88	14.97
Training	1634	2251	2511	25	42	37	15.30	18.66	14.74
Eastern	1118	1118	1299	19	19	18	16.99	16.99	13.86
Station New Delhi	718	725	744	2	7	5	2.79	9.66	6.72
Total	10170	11471	13773	170	219	236	16.72	19.09	17.13

Table-V
Causes of Accidents

Causes	1984		1985		1986	
	No	(%)	No	(%)	No	(%)
Slipping/ Skidding	105	(61.76)	109	(49.77)	116	(49.15)
Collision with another vehicle	26	(15.29)	59	(26.94)	59	(25.00)
Collision with another object	25	(14.71)	43	(19.63)	49	(20.76)
Mechanical defect	14	(8.24)	8	(3.66)	12	(5.09)
Total	170		219		236	

Table-VI
Objects of Collision

Object	1984		1985		1986	
	No	(%)	No	(%)	No	(%)
Motor cycle/ Scooter	13	(52.00)	20	(46.51)	22	(44.90)
Animal	5	(20.00)	7	(16.28)	11	(22.45)
Cyclists	4	(16.00)	6	(13.95)	7	(14.28)
Pedestrians	3	(12.00)	7	(16.28)	9	(18.37)
Bricks, Trees, Wire, Traffic islands	-		3	(6.98)	-	
Total	25		43		49	

Table-VII
Speed of the Vehicles at the Time of Accident

Speed (Kmph)	No. of Accidents	%
0 - 20	216	34.56
21 - 40	332	53.12
41 - 60	77	12.32
Total	625	

Table-VIII
Time of Occurrence of Accidents

Time	1984		1985		1986	
	No	(%)	No	(%)	No	(%)
During working hours	60	(35.29)	78	(35.62)	84	(35.59)
After working hours	110	(64.71)	141	(64.38)	152	(64.41)
Total	170		219		236	

Table-IX
Agewise Distribution of Accidents

Age (Yrs)	No of Accidents	%
20-24.9	128	20.48
25-29.9	130	20.80
30-34.9	106	16.96
35-39.9	82	13.12
40-44.9	101	16.16
45-49.9	52	8.32
50-54.9	19	3.04
> 55	7	1.12
Total	625	

Table-X
Types of Injuries

Injuries	1984		1985		1986	
	No	(%)	No	(%)	No	(%)
Fatal injuries	17	(10.0)	31	(14.16)	20	(8.47)
Head injuries	13	(7.65)	16	(7.3)	19	(8.05)
Major injuries	13	(7.65)	103	(47.03)	111	(47.04)
Minor injuries	127	(74.7)	69	(31.51)	86	(36.44)
Total	170		219		236	

increased use of two-wheelers by them. Table III indicates a 36% increase in the number of vehicles from 1984 to 1986, whereas the rate of accidents per thousand vehicles shows no significant increase. The highest incidence of accidents was in the Western Air Command and the lowest in Air Force Station New Delhi (Table IV).

Skidding or slipping was the main cause of accidents as evident from Table V. Detailed analysis of the causes of the accidents showed that most of the two-wheeler accidents were due to collision against other vehicles (Table VI). As stated by the riders driving the vehicles at the time of accident, it is found that over 87% of accidents were caused at speeds below 40 kmph (Table VII). Table VIII shows that more than 60% of the accidents were caused after normal working hours. Over 40% of accidents involved individuals in the age group 20 to 29 years (Table IX). Out of the total of 625 accidents during the three years period, 68 proved fatal, 48 persons sustained head injuries, 227 individuals major injuries including fractures, and 282 minor injuries (Table X). Compulsory use of helmets by two-wheeler riders in the Services appears to be the reason for lesser number of head injuries.

Conclusions

During 1984-'86, a total of 625 two-wheeler accidents were reported in IAF. 10.88% of these proved fatal and 7.68% resulted in head injuries. The average fatality rate was 1.9/1000 which is much below the national figures for two-wheeler vehicle accidents. The accident rates per 1000 registered vehicles were 16.72, 19.09 and 17.13 for the years 1984,1985 and 1986 respectively. The accident rate was more in the younger age group, 41.28% accidents occurring in the 20-30 years age group.

In the three years of study, the accident rate amongst officers has steadily decreased, both in the case of aircrew officers and ground duty officers. The accident rate among airmen, however, showed an increase, both among aircrew and others. This is quite significant keeping in view the increased use of two-wheeler vehicles by airmen. The number of two-wheeler vehicles has shown a 35.43% growth during the period of study as compared to a 38.8% increase in accidents during the same period, the high percentage in rate of accidents corresponding to the percentage increase of two-wheeler vehicles. However, the rate of accidents remained statistically unchanged.

Most accidents were due to skidding and slipping followed by collision with another fast moving vehicle or animals. More accidents occurred outside the camp area and outside the working hours.

Accidents can be reduced if remedial and preventive measures are taken well in time which include engineering efforts, education and enforcement.

References

1. Jacobs GD and Bowing AJ: A Study of Bus Safety in Delhi. TRRL Suppl Report 758.

2. Srinivasan NS: Road Accidents in India - A Report. National Transportation Planning and Research Centre, Trivandrum.