A study of proportion, pattern of injuries and associated factors in motor cycle accidents among the medical college students, Bellary, Karnataka

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Abstract

Background: In many countries motor vehicle accidents rank first among all fatal accidents. In India during the year 2011, a total of 4.4 lac road traffic accidents were reported in the country. 22.4% of victims of road traffic accidents were occupants of two wheelers.
Objectives: 1) To find the proportion and pattern of Injuries in motor cycle accidents among the medical college students 2) To study the associated factors of motor cycle accidents among the medical college students.
Material & Methods: A cross sectional study was conducted in Vijayanagar Institute of Medical Sciences Bellary from 15-01-2011 to 01-06-2011. A pre tested semi-structured questionnaire was used for assessing the proportion of injury, pattern of injuries and associated factors for motor cycle accidents.
Results: In the present study we found that use of mobile, passenger pressure, peer pressure, evening and night riding, Had alcohol before riding vehicle, smoking, chewing tobacco, week end riding i.e Saturday and Sunday, lack of experience, disobeying traffic rules had more risk of accident compared to others.
Conclusion: These data suggest that students needs to change their high risk behaviors.
Key words: Students, risk behavior, road traffic accidents

Introduction

Increasing mechanization in agriculture & industry, induction of semiskilled & skilled workers in various operations & overcrowding due to rise in population, lack of awareness & poor implementation of essential safety precautions results in an increasing number of accident. In many countries motor vehicle accidents rank first among all fatal accidents. In addition for every death there are as many as 50-100 minor injuries & 10-20 serious injuries requiring long periods of expensive care, nursing & treatment.[1] In 2002 global rate of death from road traffic accidents was 19/100000. The rate was 27.6/100000 for males & 10.4/100000 for females. Adults aged 15-44 years accidents account for more than 50% of deaths.[2] It is estimated that an average 3242 persons dying each day around the world. In younger age group 15-29 years road traffic accidents are second leading cause of death worldwide. From a young age, males are more likely to be involved in road traffic crashes than females. In India during the year 2011, a total of 4.4 lac road traffic accidents were reported in the country. 22.4% of victims of road traffic accidents were occupants of two wheelers. Maximum number of accidents occurred between 3 pm and 6 pm time period. [3]

Objectives

1) To find the proportion and pattern of Injuries in motor cycle accidents among the medical college students
2) To study the associated factors of motor cycle accidents among the medical college students

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Material & Methods

A cross sectional study was conducted in Vijayanagar Institute of Medical Sciences Bellary from 15-06-2011 to 01-02-2012. All the students of Vijayanagar Institute of Medical Sciences Bellary who knew riding motor cycle were included in the study. Out of 600 medical students 280 were knew about riding motor cycle, out of them 225 were agreed to participate in the study. Study was conducted after obtaining the clearance from the Institutional Ethical committee. A pre tested semi-structured questionnaire was used for assessing the proportion of injury, pattern of injuries and associated factors for motor cycle accidents after taking their written consent. Data was analysed using Epi-Info software version 3.4.3. p value less than 0.05 is considered as significant. The study variables: Age, Sex, Socio economic status, presence of license for driving, ever used mobile at the time of driving, ever driven a vehicle under passenger pressure, ever driven a vehicle under peer pressure, ever driven a vehicle under the influence of alcohol, ever tried to smoke while driving, ever driven vehicle while chewing gutka /Tobacco, distance travelled in a day, time of riding preferences, riding preference in a day of a week, ever driven a vehicle carrying more than two passengers, ever driven a vehicle at night without headlights, Average speed of vehicle while driving, ever not followed traffic rules while driving, physically challenged, ever driven the vehicle which is not in a proper condition, ever got the impulse to overtake the vehicle who as over taken, driven the vehicle which does not have the side mirrors/handle mirrors, number of years of riding the vehicle, ever driven the vehicle without using helmet, ever driven the vehicle listening to music, ever met with an accident, hospitalized after the accident, duration of hospital stay, Type of injury, Body part involved, any effect on academic career because of accident.

Results

In the present study out of 225 students Males were 173 (76.9%) & females were 52(23.1%) majority of the students belong to aged 20 years (25.8%) & 19 years (23.6%). Nearly half of the students belong to upper middle class (44.9%). (Table 1)

It was observed that 114 (50.7%) had license, 92 (40.9%) were using mobile at the time of riding, 127(56.4%) had passenger pressure, 107(47.6%) had peer pressure, 9(4%) Had alcohol before riding vehicle & 5(2.2%)were smoking & 3(1.3%) chewed tobacco at the time of riding,183(81.3%) would like to ride the vehicle in the evening and night time, 177(78.7%) would like to ride the vehicle in the week end days that is Saturday and Sunday,129(57.3%) driven the vehicle with more than 1 passengers, 64(28.4%) driven the vehicle without headlights, 14(6.2%) were driven the vehicle with the speed more than 80 km/h, 33 (14.7%) were not followed the traffic rules, 114(50.7%) were driven the vehicle which was not in a proper condition, 152(67.6%) will get the impulse to overtake the vehicle who has overtaken them,150(66.7%) driven the vehicle without side mirrors, 200(88.9%) driven the vehicle without helmet, 86(38.2%) driven the vehicle while listening to music.(Table 2)

Out of 225 medical students, 84(37.3%) met with an accident, 18(21.4%) were hospitalized, 65(77.4%) had abrasion, 12(14.2%) had cuts and 7(8.3%) had fractures. 42(50%) injury to lower limbs, 29(34.5%) injury to Upper Limb, involvement of Head and Neck was found in 9(10.7%). (Table 3)

In our study we found that use of mobile while riding, presence of passenger pressure, peer pressure, evening and night riding, Had alcohol before riding vehicle, smoking while riding, chewing tobacco while riding, week end riding i.e Saturday and Sunday, lack of experience, disobeying traffic rules, getting impulse to overtake other vehicles, riding vehicle which doesn't have side mirrors, riding vehicle above 80km/hr, riding vehicle in the night without headlights, not wearing helmet while riding, listening music while riding, riding vehicle which was not in a proper condition had more risk of accident compared to others. Out these risk factors A significant association was found between accident & alcohol intake, riding vehicle in the night without headlights and riding vehicle in the evening and night. In our study we found that the subjects who had license are more risk of having accident compared the subjects who doesn't had license and it was statistically significant. One more similar finding was, the

subjects who ride the vehicle with more than one passenger had less risk of accident when compared to other subjects and it was statistically not significant. (Table 4).

Table 1. Socio-Demographic Profile of study subjects

Socio Demographic Profile		
Variables	**Frequency**	**Percent**
Age (Completed Years)		
17(Ist Year)	6	2.7%
18 (Ist Year)	45	20.0%
19 (II nd Year)	53	23.6%
20 (III rd Year)	58	25.8%
21(Final Year)	38	16.9%
22 (Final Year)	20	8.9%
23 (Final Year)	5	2.2%
Sex		
Male	173	76.9%
Female	52	23.1%
Socio Economic Status		
Upper class	77	34.2%
Upper Middle	101	44.9%
Lower Middle	18	8.0%
Upper Lower	18	8.0%
Lower Class	11	4.9%

Table 2. Risk Factors for accidents

Risk Factors for accidents	
Variables	**Frequency (%)**
Behavioural risk factors	
Use of mobile while riding	92(40.88)
Had alcohol before riding vehicle	9(4)
Smoking at the time of riding	5(2.2)
Chewed tobacco at the time of riding	3(1.3)
Disobeying traffic rules while riding	33(14.7)
Get Impulse to overtake other vehicles while riding	152(67.6)
Riding vehicle more than 80km/h	14(6.2)
Riding vehicle with more than one passengers	129(57.3)
Listening to music while Riding vehicle	86(38.2%)
Vehicular Factors	
Riding vehicle Without side mirror	150(66.7)
Riding vehicle without headlights	64(28.4)
Riding vehicle without wearing helmet	200(88.9)
Riding motor cycle which was not in a proper condition	114(50.7)
External Factors	
Presence of passenger pressure while riding	127(56.44)
Presence of Peer pressure while riding	107(47.55)
Not having License	111(49.3)
Wish to ride the vehicle in the evening and night time	183(81.3%)
Wish to ride the vehicle in Week end (Saturday and Sunday)	177(78.7)

Table 3. Proportion of accidents and Pattern of Injuries

Proportion of accidents and Pattern of Injuries	
Variables	**Frequency (%)**
Presence of an accident	84(37.3)
History of Hospitalisation (84)	18(21.4)
Abrasion (84)	65(77.4)
Cuts(84)	12(14.2)
Fractures(84)	7(8.3)
Body Parts Involved	
Involvement of Head and Neck (84)	9(10.7)
Thorax (84)	1(1.2)
Back (84)	1(1.2)
Upper Limb (84)	29(34.5)
Injury to lower limbs (84)	42(50)
Perineal region (84)	2(2.4)

Table 4. Bivariate Analysis showing association between accident and risk factors

Variables	Accident Present	Accident Absent			
225(100)	**84(37.3)**	**141(62.7)**	**OR**	**95% CI**	**p- Value**
Gender					
Female(52)	23(44.2)	29(55.8)	1.45	0.73-2.73	0.24
Male(173)	61(35.2)	112(64.8)	1	-	-
Absence of Licence					
Yes(111)	33(29.7)	78(70.3)	0.52	0.30-0.90	0.02
No (114)	51(44.7)	63(55.3)	1	-	-
Use of Mobile while riding					
Yes(92)	38(41.3)	54(58.7)	1.33	0.76-2.30	0.3
No(133)	46(34.6)	87(65.4)	1	-	-
Presence of Passenger Pressure while riding					
Yes(127)	54(42.5)	73(57.5)	1.67	0.96-2.92	0.06
No(98)	30(30.6)	68(69.4)	1	-	-
Presence of Peer Pressure while riding					
Yes(107)	42(39.3)	65(60.7)	1.16	0.68-2.00	0.57
No(118)	42(35.6)	76(64.4)	1	-	-
Preference of Riding Vehicle in Evening and Night					
Yes(183)	75(41)	108(59)	2.54	1.15-5.63	0.02
No(42)	9(21.4)	33(78.6)	1	-	-
Had alcohol before riding vehicle					
Yes(9)	7(77.8)	2(22.2)	6.31	1.28-31.16	0.02
No(216)	77(35.6)	139(78.6)	1	-	-
Smoking while riding					
Yes(5)	4(80)	1(20)	7	0.77-63.63	0.08
No(220)	80(36.4)	140(63.6)	1	-	-
Chewing Tobacco while riding					
Yes(3)	2(66.7)	1(33.3)	3.4	0.30-38.23	0.31

Yes(3)	2(66.7)	1(33.3)	3.4	0.30-38.23	0.31
No(222)	82(36.9)	140(63.1)	1	-	-
Preference of Riding Vehicle in week End(Saturday and Sunday)					
Yes(177)	70(39.5)	107(60.5)	1.58	0.79-3.17	0.18
No(48)	14(29.2)	34(70.8)	1	-	-
Experience in riding vehicle					
Less than 5 years (78)	32(41)	46(59)	1.2	0.72-2.23	0.4
More than 5 years(147)	52(35.4)	95(64.5)	1	-	-
Disobeying Traffic Rules while riding					
Yes(33)	13(39.4)	20(60.6)	1.1	0.51-2.36	0.79
No(192)	71(37)	121(63)	1	-	-
Get Impulse to Overtake while riding					
Yes(152)	58(38.2)	94(61.8)	1.11	0.62-1.99	0.71
No(73)	26(35.6)	47(64.4)	1	-	-
Riding vehicle without side Mirrors					
Yes(150)	58(38.7)	92(61.3)	1.18	0.66-2.11	0.55
No(75)	26(34.7)	49(65.3)	1	-	-
Riding vehicle with over Speed(> 80km/h)					
Yes(14)	6(42.9)	8(57.1)	1.27	0.42-3.82	0.65
No(211)	78(37)	133(63)	1	-	-
Riding vehicle with more than one passenger					
Yes(129)	46(35.7)	83(64.3)	0.84	0.49-1.45	0.54
No(96)	38(39.6)	58(60.4)	1	-	-
Riding vehicle without Headlights					
Yes(64)	31(48.4)	33(51.6)	1.91	1.06-3.45	0.03
No(161)	53(32.9)	108(67.1)	1	-	-
Not using Helmet while riding					
Yes(200)	76(38)	124(62)	1.3	0.53-3.16	0.55
No(25)	8(32)	17(68)	1	-	-
Listening to music while riding					
Yes(86)	38(44.2)	48(55.8)	1.6	0.92-2.78	0.09

Yes(86)	38(44.2)	48(55.8)	1.6	0.92-2.78	0.09
No(139)	46(33.1)	93(66.9)	1	-	-
Riding vehicle which was not in a proper condition					
Yes(114)	49(43)	65(57)	1.63	0.94-2.82	0.07
No(111)	35(31.5)	76(68.5)	1	-	-

Conclusion

This study highlights the various risk behaviors among the medical college students. These data suggest focusing on mandatory use of a helmet, improving the driver's license system, not to drive after drugs abuse, students needs to change their other high risk behaviors and ensuring good vehicle condition to reduce the risk factors that potentially contribute to mortality and morbidity in road traffic crashes.

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References

1. WHO (2002), Health situation in the south-eastasia region 1998-2000, Regional office for SEAR , New Dehli.Health Action, Road safety, A collective Responsibility, April 2004
2. Govt. of India (2011), Accidental deaths and suicides in India , 2011, National crime records Bureau, Ministry of Home Affairs, New Delhi.
3. Suriyawongpaisal P, Kanchanasut S Road traffic injuries in Thailand: trends, selected underlying determinants and status of intervention. Inj Control Saf Promot. 2003 Mar- Jun;10(1-2):95-104.
4. Dandona R, Kumar GA, Dandona L. Risky behavior of drivers of motorized two wheeled vehicles in India. J Safety Res. 2006;37(2): 149-58.
5. Fereshteh Zamani-Alavijeh et.al, Accident-Related Risk Behaviors Associated with Motivations for Motorcycle Use in Iran: A ountry with Very High Traffic Death. Traffic Injury Prevention, Volume 10, Issue 3 June 2009 , pages 237 - 242.
6. Fitzharris M, Dandona R, Kumar GA, Dandona L. Crash characteristics and patterns of injury among hospitalized motorised two-wheeled vehicle users in urban India. BMC Public Health. 2009 Jan 12;9:11.
7. Karjalainen K, Blencowe T, Lillsunde P. Substance use and social, health and safety-related factors among fatally injured drivers. Accid Anal Prev. 2012 Mar;45: 731-6.
8. Nakahara S, Chadbunchachai W, Ichikawa M, Tipsuntornsak N, Wakai S. Temporal distribution of motorcyclist injuries and risk of fatalities in relation to age, helmet use, and riding while intoxicated in Khon Kaen, Thailand. Accid Anal Prev. 2005 Sep;37(5):833-42.

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