A Study on Sociodemographic Profile and Pattern of Injuries in Road Traffic Accidents amongst Pillion Riders in Chennai

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Abstract

One of the widespread preventable cause of unnatural death is Road Traffic Accidents. A Retrospective cross sectional study of the sociodemographic profile of pillion riders being victims of Road traffic accidents, the circumstances leading to road traffic accidents, the pattern and severity of injuries of occurring in Chennai was conducted in Saveetha Medical College and Hospital, Thandalam, Chennai, Tamilnadu. A total of 2438 cases of Road traffic accidents were recorded for a year (JAN2018-DEC2018).Out of which 62 cases (2.5%) of Road traffic accidents deals with the injuries of pillion riders. Among the pillion riders, Male outnumbered the Females(1.11 : 1). The most vulnerable age group was 21-30 years(50%). Most frequent of all is Head and Neck injuries and Injuries on the Upper limb. The information obtained can serve as a guide for better management of victims of Road traffic accidents and to establish Road safety measures.

Key Words: *Road traffic accidents, Head injury, Pillion riders, Two Wheeler Accidents, Demography.*

Introduction

Accident is an event, occurring suddenly, unexpectedly and inadvertently under unforeseen circumstances(1). A Road traffic accident occurs when a vehicle that is moving along a roadway crashes with another vehicle or object. RTAs is the most frequent cause of death under the age of 50yrs. Road traffic accidents, being life threatening if untreated at the earliest, remains to be one of the fatal ordeal, especially in case of accidents involving motorcyclist. According to the Global Status Report on road safety released by WHO in December 2018, the total mortality rate caused by Road traffic accidents(RTAs) has reached 1.35 million(2). In India, about 4,80,652 cases of Road traffic accidents(RTAs) occurs annually (3). About 181908 cases of RTAs has been recorded in South India by Ministry of Road transport and Highways as of 2016(3). As per the National Crime Records Bureau annually about 7,328 cases (9.3%) has been recorded in Chennai as of the year 2015(4). Throughout most Asian countries, the motorcycle has become an important mode of transport for most families. Pillion rider is a passenger on a motorcycle who is positioned directly behind the rider, facing forward on a registered seat for a pillion passenger(5). In vehicular collisions , the pillion riders are the most vulnerable to injuries because limited or no physical protection with the most common type of injuries sustained being head injuries. Mortality rate remains higher for both the drivers and the pillion riders.

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Materials and Method

This study was conducted retrospectively for a time period of 1 year (JAN 2018- DEC 2018) at Saveetha

Medical College, Thandalam, Chennai, Tamil Nadu. Required approvals were obtained from the respective institutional ethics and research committee. In this study all pillion riders victims of RTAs who presented themselves to Emergency department of Saveetha Medical College (JAN 2018- DEC 2018) were included. Death occurring in RTAs due to other vehicles apart from 2 wheelers were excluded.

The data was collected as per the preformed and approved format. The Sociodemographic profile and injury profile were collected from the case records of the victims. The collected data was analysed by using SPSS Software.

Results

A total of 2438 cases of RTAs were recorded for a year (JAN 2018- DEC 2018) at Saveetha Medical College and Hospital, Thandalam, Chennai, Tamil Nadu. Out of which 62 cases[2.5%] of RTAs deals with the injuries of pillion riders. Among the pillion riders Males(55%) outnumbered the Females (45%)[1.11:1][Fig.1].The most vulnerable age group was 21-30years among pillion riders followed by that of 31-40 years(19%)[Table 1]. Month of December accounted for highest number of RTAs with 14 cases(22%) respectively[Fig.2].

Majority of the accidents occurred during evening (6.01pm to 12:00am) (36%) followed by that between 6AM to 12 PM(32%) .It was observed that nature of accidents in majority of cases were due to skid and fall(66%) followed by a head on collision with another 2 wheeler (14%). Majority of the accidents were front impact/collision (79%).Almost 2/3rd of the RTAs involving pillion riders has occurred at National highways(68%).Majority of the pillion riders involved in this study were residing at Semiurban areas(47%)[Table-2].

Most of the cases, area of impact was found to be Head & Neck and Upper limb(50%).Injuries in the abdomen were least common among these cases(2%) [Fig.3].Abrasion(72%) was the most common pattern of injuries in these cases. Only 21% were using helmet at the time of accident[Fig.4]. There were no fatal cases of pillion rider RTAs reported in this one year study.

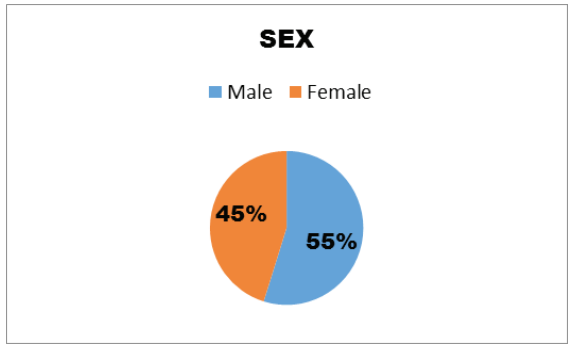

Fig.1:EX DISTRIBUTION

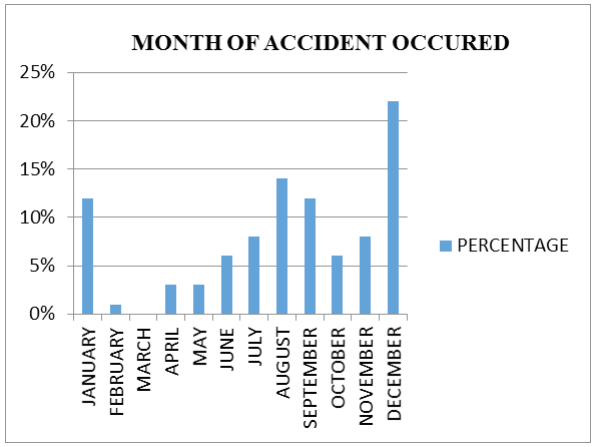

Fig.2: MONTH OF ACCIDENT OCCURED

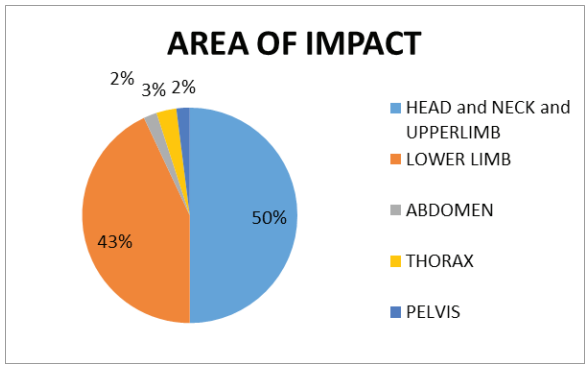

Fig.3: Area of Impact

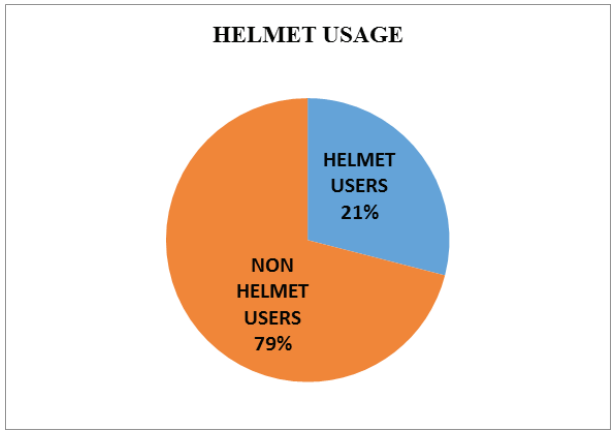

Fig 4: HELMET USE (n=62)

TABLE-1: Age and Sex Distribution

Age	Sex		Total(%)
	Male	Female	
1-10yrs	3	1	4(6%)
11-20yrs	5	1	6(10%)
21-30yrs	21	10	31(50%)
31-40yrs	2	10	12(19%)
41-50yrs	3	5	8(13%)
51-60yrs	0	1	1(2%)
TOTAL	34	28	62

TABLE-2: Profile of RTA Victims(n=62)

Characteristics		No. of Cases	(%)
TIME	12:01am to 6:00am	3	5%
	6:01am to 12:00pm	20	32%
	12:01pm to 6:00pm	17	27%
	6:01pm to 12:00am	22	36%
RESIDENT OF RTAs VICTIMS	URBAN	21	34%
	SEMIURBAN	29	47%
	RURAL	12	19%
PLACE OF ACCIDENT	NATIONALHIGHWAYS	42	68%
	VILLAGE	20	32%
OFFENDING VEHICLE TYPE	2WHEELER	9	14%
	4WHEELER	5	8%
	AUTO	2	3%
	LORRY	1	2%
	BUS	1	2%
	PEDESTRIAN HIT	3	5%
	SKID and FALL	41	66%
SIDE OF IMPACT	FRONT	49	79%
	REAR	5	8%
	SIDE	8	13%
AREA OF IMPACT	HEAD and NECK and UPPERLIMB	31	50%
	LOWER LIMB	27	43%
	ABDOMEN	1	2%
	THORAX	2	3%
	PELVIS	1	2%

TABLE-3: PATTERN OF INJURIES AND AREA OF IMPACT(n=62)

AREA OF IMPACT	PATTERN OF INJURIES				TOTAL
	ABRASION	CONTUSION	LACERATION	FRACTURE AND DISLOCATION	
HEAD AND NECK AND UPPERLIMB	20	2	2	7	31(50%)
LOWER LIMB	20	3	2	2	27(43%)
ABDOMEN	1	0	0	0	1(2%)
THORAX	2	0	0	0	2(3%)
PELVIS	1	0	0	0	1(2%)
TOTAL	44(71%)	5(8%)	4(6%)	9(15%)	62(100%)

Discussion

The most vulnerable age group involved in pillion rider RTAs was found to be between 21-30years which is similar to the findings of studies of R. Ravikumar et al shows that majority of pillion riders belong to age group between 20-29yrs[6].The reason probably being increased risk taking attitude of youth and reduced road safety measures. Male victims(55%)outnumbered the Females(45%). This finding was unlike a study by Urfi et al which showed that female victims(60%) outnumbered the male victims(40%)[7].Males being the predominant working population and bread winner in the Indian families could be the reason for being the victims of RTAs.

In the present study, majority of the accidents occurred at December (22%). This season also has close similarity with winter season in India where number of RTAs are on the rise.

Most of the accidents took place at National highways(68%). Front on collision is the most common way of accident in pillion riders. Skid and fall(66%) was found to be the major cause for the RTAs among pillion riders. According to Nupur pruthi et al most of the accidents had taken place due to skid and fall(45.5%) [8].The drivers exceeding the speed limits, not following traffic rules and reduced road maintenances are some of the probable reason. In the present study, in 62 victims other than injuries to Head& neck and Upper limb together comprising of 50% , injuries to the lower limb was the common injury. It was present in 43% of cases, followed by Thorax(3%), Pelvis(2%) and Abdomen(2%). Abrasion(72%) was the most common pattern of injury followed by Contusion(8%), Fracture & dislocation(8%),Laceration (6%) and other injuries(6%).Unlike K.Prasannan et al and P.A.Sheeju et al study which showed that Chest injury(43.13%) was the major injury in RTA among pillion riders[9]. There were no fatal cases of pillion rider RTAs reported in this one year study. 79% of the pillion riders were not using helmet at the time of accident. Head Injury was more in pillion riders than the drivers. It may be due to the usage of helmet by the drivers.

Conclusion

Road traffic accidents continues to be a threat, causing heavy loss of valuable human assets, along with loss of future economic growth. Interventions in RTA should include integrated efforts from the society, governmental and non-governmental organizations. Political guidance, good governance and a unfailing technical team are the essential components. The information obtained can serve as a guide for better management of victims of road traffic accidents and to establish Road safety measures.

Recommendation:

· Strict rules should be implemented to ensure mandatory Helmet usage for both drivers and pillion riders..

· Road traffic rules and speed limits should strictly be followed.

· Educating the public on pillion rider safety by the government.

· An engineering intervention is needed that will address the injuries typically sustained by pillion riders. A device to be devised as safety backrest for pillion riders and also other measures that will protect the lower limbs, chest, abdomen, and neck .

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Conflict of Interest: None declared.

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