

**STUDENT ARTICLE**

# Perception of Medical Undergraduates regarding Drifts of Road Traffic Accidents in the Metropolitan City of Karachi

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## ABSTRACT

**Background:** Currently, Road traffic accident (RTA) is the 9<sup>th</sup> leading cause of deaths worldwide. Therefore, this research was conducted to assess the awareness of medical undergraduates regarding drifts of road traffic accidents in the Karachi city.

**Methods:** This survey was carried out at Dow University of Health Sciences, Karachi during a period of one month, from February 2016 to March 2016. A total of 334 medical undergraduates studying in Dow Medical College, DUHS were enrolled. A pre-structured questionnaire was designed to collect perception of medical undergraduates regarding the causes of RTA, common victims, age groups and the body part mostly affected.

**Results:** According to our study, majority of the responders (n=265, 79.3%) believed that RTAs occur more commonly in commercial areas of the city with 19 to 40 years being the most common age groups (n= 283, 85.3%). Motorcyclists were reported as the most common victims (n=251, 75%) whereas head was reported as the most affected region (n=192, 57.5%). Majority (n=303, 90.7%) believes that awareness among drivers regarding preventable causes of RTAs can lower the accident rates. Moreover, 317 (94.9%) respondents also suggested strict laws and regulations to decrease the number of deadly accidents in the city.

**Conclusion:** According to majority of the medical undergraduates, there is a dire need to create awareness among drivers of Karachi. Furthermore, strict laws and regulations to reduce the number of deadly accidents in the city were also suggested by respondents.

**Keywords:** Road traffic accidents, preventable measures, motorcyclist.

## INTRODUCTION

Road traffic accidents are being recognized as one of the most significant public health challenges at the dawn of the new century. Human errors have played a vital role in dictating the severity of RTAs; the main contributors are emphasized as drunken drivers, indecisiveness, fatigue, distraction and confusion. Increasing statistics of RTA related injuries and deaths in the developing countries when compared to the developed nations are mainly due to improper enforcement of traffic safety regulations, massive increase in the number of motor vehicles, poor public health infrastructure & lack of emergency settings in hospitals etc.

According to WHO report, in the year 2013, fatal accidents caused more than 1.24 million deaths all over the world. RTA currently is the 9<sup>th</sup> leading cause of death worldwide. World Health Organization (WHO) predicted that if casualties persisted at this pace, RTAs would then be considered the 5<sup>th</sup> leading cause of death by the year 2030.

Pakistan is known to have a record in the worst traffic safety worldwide, with 14.4 casualties per 10,000 registered motor vehicles. In 2009, a WHO report estimated 25.3 deaths per 100,000 deaths in Pakistan due to RTA which is considerably high by international standards. Karachi being the metropolitan city of Pakistan is considered to be the economic focus of the

nation. It is unfortunate that the rate of accidents and fatalities associated with it strikes a massive setback in the nation's economy.

The number of casualties has considerably increased due to RTAs in busy cities like Karachi. Hence, this research has been conducted in order to gain awareness regarding the causes of RTA; common victims, age groups and the body part mostly affected. It also determines the preventive measures that can be taken to limit the rise in number of RTAs in Karachi.

This research analyzes data on RTA in Karachi whose infrastructure is unsubstantial, and the law and order situation are appalling. Therefore, the objective of this study is to identify the knowledge of medical students in Karachi regarding RTAs and to assess the impact of RTAs on the health of population of Karachi.

## METHODS

A survey was carried out on medical undergraduates of Dow University and Health Sciences (DUHS), Karachi during February to March 2016. All the medical students of Dow Medical College, DUHS, Karachi agreed to participate in the study and gave informed consent were consecutively included. The sample size was 350 which were calculated using Open Epi online software for sample size calculation, by keeping the confidence level at 95% and the anticipated frequency at 35%. A total of 350 questionnaires were distributed, out of which 334 were responded. Response rate was 95.4%, which included 82% females and 18% males.

A pre-structured questionnaire was designed to collect perception of medical undergraduates regarding the causes of RTA, common victims, age groups and the body part mostly affected.

Data were entered and analyzed descriptively using IBM Statistical Package for the Social Sciences (IBM SPSS Statistics for Windows, Version 16.0.) Frequency and percentages were calculated for quantitative variables like major cause of death, most common place of RTA, mobile phones usage while driving and RTA, increased population, and most affected age group. Moreover, frequencies and percentages were also calculated for most affected body part and factors that can play the preventive role.

## RESULTS

Out of total of 334 medical undergraduates, 273 (82%) were females and 61 (18%) were males. The mean age of the medical undergraduates was  $22.32 \pm 7.7$  years.

As per the perception of majority of the medical undergraduates, mobile phone usage while driving is the most common cause of RTA, i.e. 305 (91.3%), followed by increasing number of populations 240 (71.9%), whereas individuals in between 19-40 years of age were the most affect age group. (Table 1)

According to 192 (57.5%) respondents head injury accounts for the most common injury in RTAs, limb injuries being second most common 116 (34.7%) including crush wounds, fractures, dislocations, soft tissue injuries leading to amputation. On the other hand, a minority of 13

**Table 1: Perception of medical undergraduates regarding the causes of RTA and most vulnerable individuals**

Variable	n	%
<b>Major cause of unnatural death</b>		
Yes	235	70.4
No	74	22.2
Don't know	25	7.5
<b>Most common place</b>		
Residential Area	69	20.7
Commercial Area	265	79.3
<b>Mobile phones usage while driving</b>		
Yes	305	91.3
No	27	8.7
<b>Increasing population</b>		
Yes	240	71.9
No	55	16.5
Don't know	39	11.7
<b>Most affected age group, years</b>		
1-18	39	11.7
19-40	285	85.3
41-60	10	3.0
<b>n: number, RTA: Road Traffic Accident</b>		

**Table 2: Perception of medical undergraduates regarding the most affect body part affected in RTAs**

Variable	n	%
<b>Most affected body part</b>		
Head	192	57.5
Chest	13	3.9
Abdomen	13	3.9
Limbs	116	34.7
<b>Skull fractures</b>		
Yes	133	39.8
No	141	42.2
Don't know	60	18.0
<b>Brain dysfunction</b>		
Yes	207	62.0
No	66	19.8
Don't know	61	18.3
<b>Disability</b>		
Yes	209	62.6
No	72	21.6
Don't know	53	15.9
<b>Head and neck injuries</b>		
Yes	276	82.6
No	40	12.0
Don't know	18	5.4

**n: number, RTA: Road Traffic Accident**

(3.9%) believed chest & abdominal injuries to be the most common. 207 (62%) respondents are of opinion that RTA plays a major role in deteriorating brain function without significantly damaging the head. Skull fractures were not commonly seen in RTA as per knowledge of majority respondents 141 (42.2%). A majority of 209 (62.6%) respondent agreed that RTAs are a leading cause of disability, causing considerable social and economic loss to victims. Affirmative responses were recorded by 276 (82.6%) when asked if head and neck injury is the leading cause of death due to RTAs. About the most common victim, 251 (75%) agreed on motorcyclists being more prone to RTAs making bright colored clothing, modulated headlight and helmet usage significant. (Table 2)

**Table 3: Opinion of medical undergraduates regarding the preventive factors of RTAs**

Variable	n	%
<b>Use of Helmet</b>		
Yes	331	99.1
No	3	0.9
<b>Separate Route for trucks and tankers</b>		
Yes	314	94.0
No	6	1.8
Don't know	14	4.2
<b>Good infrastructure</b>		
Yes	293	87.7
No	29	8.7
Don't know	3.6	3.6
<b>Awareness regarding RTAs</b>		
Yes	303	90.7
No	19	5.7
Don't know	12	3.6
<b>Strict Laws</b>		
Yes	317	94.9
No	10	3.0
Don't know	7	2.1

**n: number, RTA: Road Traffic Accident**

Motorcyclists are more common victim 251 (75%) followed by Pedestrian 68 (20.4%), car and truck drivers 8 (2.4%) and 7 (2.1%) respectively. According to 331 (99.1%) respondents, use of helmet while riding motorbikes can prevent serious injuries due to RTAs, 314 (94%) suggests that there should be separate routes for trucks and tankers in order to prevent dangerous collisions among vehicles. Moreover, poor road structures and maintenance are thought to be one of the major factors leading to RTA as per knowledge of 293 (87.7%) of the population. Awareness among drivers regarding preventable causes of RTAs can also lower the accident rates according to 303 (90.7%) of the respondents. A total of 317 (94.9%) respondents believe that strict laws and regulations can decrease the number of deadly accidents in the city whereas 202 (59.9%) reported that driving in night for learner should be prohibited. (Table 3)

## DISCUSSION

According to the study findings, majority of the responses were pointing to motorcyclists being the most common victims in RTA as motorcycles are a very common vehicle in our society. Although, it is affordable even by the people belonging to low socioeconomic status making it a convenient choice and as per their financial status. Motorcycles are designed to carry only two people but more than two people using a single motorcycle for transportation is a common sight in Pakistan which can lead to loss of balance. Younger generations such as teenagers perform different tricks on motorbikes and race recklessly on roads and that can lead to RTAs.

A study conducted in Civil Hospital Karachi and Jinnah Postgraduate Medical Centre stated high speed to be an important and consistent factor in motorcyclists being most common RTA victims.

In our study, a small number of participants also believes that pedestrians were victims as well. No zebra crossings, ignorance of traffic lights, diversion of attention due to mobile phones, improper illumination of the roads etc. can be the reasons. In a study conducted in Multan between the years 2010 and 2013, a similar fact was stated that the pedestrians are the most common victims, it also emphasized on the lack of pedestrian bridges which forces people to cross the busy roads with heavy traffic.

In the present study, almost half of the respondents believe that head injury accounts for the most common injury in RTAs. Similar study carried out in D.I Khan in 2013 showed that a majority of people underwent head injuries. The most probable cause is lack of helmet usage during riding a motorcycle. A study based in Karachi also highlights that the importance of helmets.

According to our study RTAs are a leading cause of disability, causing considerable social and economic loss to the society. This is due to the involvement of the age group 19-40 years which comprises of the economically and socially productive ages providing greatest benefit to the society in every way.

Similar to our study findings, another study from Karachi has reported age group 19-40 years as

the most vulnerable group for casualties (55.7%). While the people aged 15-44 years were most affected (48%) in a study carried out in Rawalpindi General Hospital in 2005. This age group is also mostly affected because of the risk-taking nature and impulsive behavior commonly found among young individuals. A study in Ahmedabad city mentions that approximately 77% of the patients belong to 11-50 year age group which has a major impact on the society. Similar results were also found in another study in JIPMER [Pondicherry], Delhi & Nepal as well.

A study highlighted that in Karachi MA Jinnah road, Korangi and Shahrah-e-faisal are the major commercial roads with huge inflow and outflow of traffic as they connect major areas of the city. Hence, more RTAs are likely to occur here. Majority contemplated that using mobile phones while driving causes intrusion and increases the risk of RTA. In 2016 a study carried out in Oman showed that 83% drivers always used mobile phones while driving. Averse to this, a study among medical students in India during the year 2016 states that the use of mobile phones while driving was significantly low (34%). Another study conducted in Indore in 2013 highlights that only 15 participants used mobile phone devices without hand free while driving. These statements suggest the lack of safety measures and careless attitude of drivers as well as poor abidance of the traffic rules which itself is an important contributor in the inflating number of RTAs.

Almost all respondents' stress upon spreading awareness among drivers about the preventable causes of RTAs so they can be helpful in lowering rate of accidents in future. Along with this, majority in this study were in their opinion that strict laws and regulations should be implemented. A study in the South Indian state in 2013 also stated that road safety measures should be stressed to decrease the worse outcomes associated with RTAs. Similarly, a study in Saudi Arabia emphasized that a high percentage of participants had wrong knowledge and awareness regarding driving practices.

The dire need for awareness is due to several reasons like "high speed" according to 52% of

medical students. The other reasons as discussed in a study conducted in Iran are "noncompliance with seat belt usage" and "performing risky overtaking maneuvers" by 44.4% of drivers, all of which increase the risk of RTAs.

## CONCLUSION

The study concludes that the knowledge about RTA and its causes necessary measures must be taken to ensure the safety of people while driving or even walking on roads. Proper use of helmets is a necessity and it should be encouraged in general population especially the age group 19-40 years since they have been found to be sustaining the most disabling traumas from RTAs. Use of mobile phones while driving alone has led to many RTAs since it meddles with the level of concentration. Robust legislation and rules are needed to be implemented to minimize the risk of RTA as much as possible. Enhancing the quality of infrastructure and good maintenance has a key role in RTA prevention. Both government and civilians play their parts when it comes to excising and abidance of the law or the increase in the rate of RTAs is inevitable.

## REFERENCES

- Hyder A, Ghaffar A, Masood T. Motor vehicle crashes in Pakistan: the emerging epidemic. *Injury Prev* 2000; 6:199-202.
- Beevi N, Manju L, Jose R, Bindu SA, Haran JC. Five year road traffic accident trends in Venjarammoodu police station limits of South Kerala. *AMJI* 2015; 3:39-41.
- Nantulya VM, Reich MR. The neglected epidemic: road traffic injuries in developing countries. *Br Med J* 2002; 324:1139-41.
- World Health Organization. More than 270 000 pedestrians killed on roads each year WHO calls for actions to save lives. (Accessed 2nd October 2018) Available from:
- Haider M, Badami M. Public transit for the urban poor in Pakistan: balancing efficiency and equity. *Forum on Urban Infrastructure and public service delivery for the Urban Poor* 2004: 24-5.
- World Health Organization. Global status report on road safety: Time for action. (Accessed 14<sup>th</sup> November 2018) Available from:
- Afzal I, Naz R, Afzal MK, Mughal MI. Head-injury and its consequences-a one year study in Karachi. *Med Forum Monthly* 2014; 25:1029-385.
- Ali A, Mehraj J, Mahmood S, Mirza Z, Tahir M. Frequency of risk factors associated with road traffic accidents of motorbike in a big city of a developing country. *J Dow Univ Health Sci* 2010; 4:62-78.
- Arif M, Ahmed M, Rasool SH. Road Traffic Accidents; Autopsy based study in Multan. *Prof Med J* 2015; 22:621-6.
- Saleem S, Haider A, Khan J, Saleem T. Study of fatal road traffic accidents: Based on Medico-Legal Autopsies. *Gomal J Med Sci* 2015; 13:19-22.
- Khan I, Khan A, Aziz F, Islam M, Shafqat S. Factors associated with helmet use among motorcycle users in Karachi, Pakistan. *Acad Emerg Med* 2008; 15:384-7.
- Mirza FH, Hassan Q, Jajja N. An autopsy based study of death due to road traffic accidents in metropolis of Karachi. *J Pak Med Assoc* 2013; 63:156-60.
- Bhatti MA, Ajaib MK, Masud TI, Ali M. Road traffic injuries in Pakistan: Challenges in estimation through routine hospital data. *J Ayub Med Coll Abbottabad* 2008; 20:108-11.
- Shah A, Jarwani B. Study of patients of Road traffic accidents arriving in emergency department of V.S hospital Ahmedabad city. *Nhl J Med Sci* 2014; 3:23-6.
- Jha N, Srinavasa DK, Roy G, Jagdish S, Minocha RK. Epidemiological study of Road Traffic Accident cases: A study from South India. *Ind J C Med* 2004; 29:20-4.
- Zubair S, Kazmi SJ. Spatial framework for the assessment of Road traffic accident in Karachi. *J Basic Appl Sci.* 2013; 9:525-32.
- Abdo AM, Al-Ibrahim YA. Assessment of traffic society & Awareness among road users in Salalah, Sultanate of Oman. *Res J Appl Sci Eng Technol* 2016;12:574
- Zaidi SH, Paul PC, Mishra P, Srivastav A. Risk perception and practice towards road traffic safety among medical students. *Int J Community Med Public Health* 2017; 4:9-14.
- Mahawar P, Dixit S, Khatri AK. An education intervention to improve awareness on road safety:a study among school going teenagers in Indore. *Nat J Community Med* 2013; 4:529-32.
- Kulkarni V, Kanchan T, Palanivel C, Papanna MK, Kumar N, Unnikrishnan B. Awareness and practice of road safety measures among undergraduate medical students in a South Indian state. *J Forensic Legal Med* 2013; 20:226-9.
- Gharaibeh E, Abdo AM. Assessment of traffic safety and awareness among Youth in Al-Ahsa Region, Saudia Arabia *J Emerg Trends Engin Appli Sci.* 2011; 2:210-15.
- Al-Khaldi YM. Attitude and practice towards road traffic regulations among students of health sciences college in Aseer region. *J Family Community Med* 2006; 13:109-13.
- Tajvar A, Yekaninejad MS, Aghamolaei T, Shahraki SH, Madani A, Omidi L. Knowledge, attitudes and practice of drivers towards traffic regulations in Bandar-Abbas, Iran. *Electron Physician* 2015; 7:1566-74.