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ROAD SAFETY MEASURES

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INTRODUCTION:

World Health Organization has defined accidents as “an unexpected, unplanned occurrence which may involve injury”¹. Amongst all accidents, road traffic accidents claim almost one third of the lives. According to a study conducted by the National Transportation Planning and Research Center (NTPRC), every four minutes a person is killed or injured in road accidents in India². Road traffic accident is one of the leading causes of preventable deaths worldwide. This article is specially targeted to draw the attention of the young students and their parents by discussing the factors related to road traffic accidents, and also by discussing the various preventive measures that can be taken to reduce the occurrence of such incidents.

Death is the ultimate truth of life. Injuries and fatalities are killing around 1.2 million people every year and injuring 50 million people worldwide. These victims occupy 30-70% of orthopaedic beds in developing country's hospitals³. The financial costs to the communities for Road Traffic Accidents (RTA) are greater than required for the treatment of any other major diseases. These are the most common cause of death below the age 50 years in developed countries. With continuation of present trends, road traffic injuries are predicted to be the third leading contributor to the global burden of disease, just behind clinical depression and heart disease by 2020⁴. In developing countries 90 percent of the *Disability Adjusted Life Years* (DALYs) lost occurs because of road traffic injury⁵. One DALY is roughly equivalent to one healthy year of life lost. In developing and poor countries three-quarters of all poor families who lost a member to road traffic death reported a decrease in their standard of living and 61 percent reported that they had to borrow money to cover expenses following their loss.

World Bank estimates that road traffic injuries cost 1-2 % of the gross national product (GNP) of developing countries, or twice the total amount of development aid received worldwide by developing countries⁶

Accidents occur due to various factors. Since many factors influence road traffic accidents, it is very difficult to sort out a single culprit lying behind it. According to few experts, these factors can be classified into six types which are in short known as **TRAVEL**⁷.

<i>Traffic related (T)</i>	<i>Road related (R)</i>
<i>Accident Victim Related (A)</i>	<i>Vehicle related (V)</i>
<i>Environment related (E)</i>	<i>Legal related (L)</i>

DISCUSSION:

The factors related to road traffic accidents which can be prevented even at household level like – age and sex of the victims, use of protective gears by occupants, use intoxicants during driving, boarding in an overloaded vehicle etc. will be discussed.

Age and Sex of the Victims: Various studies showed that young people in the age group of 18-30 year are mostly involved in road traffic accidents, especially in two wheelers.

- Sharma BR et al (2007)⁸, Jain A et al⁹, Singh YN et al¹⁰ found that more than one third of the victims of RTA were from the age group of 18-35 years.
- Pruthi N et al (2010) in a study conducted at the *National Institute of Mental Health And Neurological Sciences* (NIMHANS), Bangalore found that out of the 33 pillion riders, 14 (42.4%) were females¹¹. Singh YN et al found that males were seven time more susceptible to RTA than the females, since they use motorbikes more.
- Santhiyasekaran BWC (1991)¹², Pillay VV (1992)¹³, Gupta S et al (2007)¹⁴ found more male deaths in their studies on RTA

Use of protective gears by occupants: Protective gears like helmet, boots, and gloves are absolute necessity for riding a motorcycle. For four wheelers use of seat belts is highly recommended.

- According to *National Crime Records Bureau* (NCRB), two wheeler vehicle is the most common offending vehicle of RTA (21.1%) followed by truck/lorry (20%) in 2010¹⁵.
- Motorcyclists are at high risk in traffic crashes. A 2008 systematic review examined studies on motorcycle riders who had crashed and looked at helmet use as an intervention. The

review concluded that helmets reduce the risk of head injury by around 69% and death by around 42%¹⁶.

Use intoxicants during driving:

- According to a report of the Central Road Research Institute (1997), traffic rule violation was a major reason for increased road traffic fatalities; 13.7% fatalities were due to non-observance of traffic rules and 21.5% under the influence of alcohol¹⁷.
- A report of the National Center for Injury Prevention and Control, US (1998) observed that alcohol consumption was involved in 38% of traffic fatalities¹⁸.
- Van der Spuy JW (2000) stated that alcohol and other forms of substance abuse are major associated factors in motor vehicle related trauma. In South Africa, 7% of drivers with illegal blood alcohol levels account for nearly 30% of non-fatal and 47% of fatal driver deaths, while injury to drunken pedestrians accounts for 72% of adult traffic deaths¹⁹.
- Singh Y N et al (2005) in their 5 year study from 1999 to 2003 found that out of 1872 case of RTA alcohol/drugs has a major role in 211 cases of road traffic accidents¹⁰.

Boarding in an overloaded vehicle:

It has become a common scenario in Assam, college or school student wearing uniform is seen boarding (hanging) on the footboards or footplates of a vehicle. Overloaded vehicles have threatened road safety and contributed to many of the fatal accidents. The overloaded vehicle



will not only put the driver at risk, but also passengers and other road users. The vehicle will be less stable, difficult to steer and take longer time to stop. Vehicles react differently when the maximum weights which they are designed to carry are exceeded. Insurance coverage on overloaded vehicles may be void as overloading is illegal. We being common

users of public transport system should always discourage these kinds of practices. Just like parents, as a passenger we must stop those students from boarding on the footboards, even the

driver must also exercise his moral duties to the society by preventing the passengers from boarding on the footboards.

CONCLUSION:

“The difference between what we do and what we are capable of doing would suffice to solve most of the world’s problem.” (Mohandas Karamchand Gandhi).

Road traffic accidents are the number one killer in India taking away precious lives. The role of road traffic injuries in India is significant and is clearly responsible for loss of life, disability, and has an undefined negative impact on economic and social resources. It is time for this public health problem in a population of over a billion people to be recognized as a preventable cause of loss of healthy life. Thus, efforts are needed to better define the specific characteristics of the problem in a uniform manner so that corrective measures could be tested and implemented accordingly. Especially it becomes a responsibility of the parents to protect their children from such unwanted incidents. A number of measures can be suggested to lower the injury rate and severity:

- Parents should teach their children the common traffic rules and also should encourage their children regarding judicious use of motorbikes
- Limit the speed of your vehicles and also stop drivers of public transports from crossing the speed limit
- Proper implementation of ban on drink and drive, and use of mobile phones while driving
- Ban on use of mobile phone while crossing the road
- Use of protective gears like helmets, boots, seat belts by occupants of vehicle
- Making good quality roads with lightings and signals, and not to construct humps in highways
- Make single way driving and avoid haphazard road crossing by pedestrians
- Build pavements for people to walk and ban of shops or sale on pavements
- Do not allow shops/houses adjacent to highway for a considerable distance
- Awareness to the public regarding importance of “golden hour” and rapid transportation of victims to specialized trauma centres

- Establishment of tertiary trauma centres at periphery, as most of the victims die before they could reach a tertiary health care centre with advance trauma management facilities
- Impose very hefty fine if one violates the traffic rules with driving license cancellation for repeated violation of traffic rules
- Encourage to utilize public transport system
- Periodic health check-up of drivers as well as check up of the vehicles
- Stop over loading of vehicles and also put ban on carrying over sized materials which are longer than the length of the carrier
- Protect road side ponds and water bodies and also avoid encroachment of roads by animals
- Keep at least two seconds cushion between you and the car ahead
- Try to avoid driving in bad weather, if it is not absolutely necessary
- Use of both side view mirrors and rear view mirrors time to time also keep your eyes scanning the area ahead instead of concentrating on the vehicle in front of you
- Avoid driving when you are tired
- Plot your journey before you set out to go anywhere and choose the convenient route
- Leave your home or office in ample time to allow for driving safe
- Know the limitations of your vehicle and be courteous to others
- Keep at least one of your hand on steering wheel, while changing radio channels or also during drinking water/taking snacks
- Strict application of driving license issuance rules and dismissal corrupt traffic wardens.

Special attention to two wheeler protective gears:

HELMET: Motorbike has become a passion amongst the young, and they are always in a hurry to reach their destination. At times because of their immature driving, high speed, non-usage of helmet can shift their destination to another place called hospital. Parents can invest 80K to buy a motorbike, but there is no sense that they cannot invest another 1-2K for a good helmet. Even if someone buys a helmet, that is for fashion which is not at all protective.

Studies have consistently shown that wearing a helmet

- Reduces injury and increases a rider's chance of surviving a crash
- Does not contribute to neck injuries

- Does not impair vision or hearing

There are three main styles of helmets: flip-face, open-face and full-face. An open-face helmet will protect everything but the face. Full-face helmets protect the skull, plus providing protection for the lower jaw as well as the face itself. Full-face helmets offer much more protection than open-face helmets.

A full face helmet covers the entire head, with a rear that covers the base of the skull, and a protective section over the front of the chin. Studies have shown that full face helmets offer the most protection to motorcycle riders because 35% of all crashes showed major impact on the chin-bar area²⁰.



Stylish Modular or Flip-Up helmets are also useful to some extent. When fully assembled and closed, they resemble full face helmets by bearing a chin bar for absorbing face impacts. The chin bar may be pivoted upwards by a special lever to allow access to most of the face, as in an open face helmet. It has an advantage that the rider may eat, drink or have a conversation without unfastening the chinstrap and removing the helmet, making them popular among motorbike users. It is also

popular amongst the people who use eye glasses as it allows them to fit helmet without removing their glasses. In this type of helmet there is slightly increased risk of neck injuries in crashes, since the chin bar section protrudes further from the forehead than a three-quarters visor, while riding with the helmet in the open position.

BOOT: Boots are worn by motorcycle riders and pillion riders to prevent or reduce harm to their feet and ankles while riding and in the event of a crash. They are made up of materials which are

impact, abrasion, cut, tear and burst resistant. Tough, strong, moderately flexible boots with stiff non slippery soles provide the rider protection from a number of risks.

GLOVES: Motorcycling gloves are typical gloves made of leather. Gauntlets present in these gloves protect the rider's wrists from injury, and help reduce drafts while riding in colder climates. The reinforced palms of the gloves intended to protect the rider from abrasion injuries in case of an accident.

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