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## **Road Accidents among Adolescents**

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**Abstract:** *Databases of CINAHL, MEDLINE, Local Newspaper, National, International Journals, and Magazines regarding Road traffic accidents and traffic safety among adolescents were explored to compile a review article. A systematic investigation will provide dynamic understanding about the road accidents, incidence, causes & actions for traffic safety among adolescents. According to demographic and clinical data on all accident victims admitted age between 12- 20 year. There were 257 (95.2%) males and 13 (4.8%) females. There were 12 (4.4%) deaths, 9 (75%) due to traumatic brain injuries. Sometime these accidents caused lifetime disablement, injury to victims and big loss for families.<sup>(1)</sup> Due to vast mechanization of today's world, youngsters have been provided so many facilities. On one hand all these things are new, fast, attractive, and adventurous and time saving but on the flip side all these things are very harmful to new generation. Avoidance of safety gears, lack of understanding about traffic rules and risk taking behavior is more prevalent among adolescents. Children saved today from nutritional and infectious diseases are killed and maimed by injuries in hundreds of thousands tomorrow. In fact, road traffic injuries alone ranked as the number one cause of the burden of disease among adolescents. While planning traffic safety initiatives, policy makers and leaders need to recognize children's vulnerabilities as well as their inexperience,*

*developmental needs and exuberance for life. Road crashes are not “accidents” we need to challenge the notion that traffic crashes are unavoidable and make room for a proactive, preventive approach to reducing death on our roads. Doing is a better route to better traffic safety.<sup>(2)</sup>*

**Keywords:** *Road Traffic Accidents, Adolescents, Traffic safety, Crashes, Fatalities, Speed, Safety rules, Safety Signs*

**Key Messages:** Appropriate knowledge of traffic rules, legally age and enough counter checks by traffic police can help to decrease the numbers of accidents among adolescents. Participation of health personnel also required to educate the adolescents in various sections of community about traffic accidents, its causes, consequences and traffic safety measures to bring remarkable change in the knowledge, attitude and practices of adolescents among traffic safety.

## **1. Introduction**

Road traffic accidents are routine occurrences throughout the world. Thousands of people lose their lives on the roads every day. Many more left with disabilities or emotional scars that they will carry for the rest of their lives. Every hour of every day, forty adolescents die as a result of road traffic crashes. This means that every day another one thousand families have to cope with the unexpected loss of a loved one. Losing a child is never easy. Knowing that a child was lost to a preventable incident may add to the pain and suffering, and can leave families and communities with emotional wounds that take decades to heal. The future of a country is its young people. Road traffic accidents are the leading causes of death globally among 15-19 years while for those in 12-14 they are the second leading cause of death.<sup>(3)</sup>

## **2. What is a road traffic accident?**

A traffic accident occur when a road vehicles collides with another vehicles, pedestrians, animals, road debris, or other geographical and architectural obstacles. Traffic accidents

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can result in injury, property damage and death. Road traffic accident can be defined as “the collision of vehicles results in injury, property damage and death” It is reported in global status report in road safety

Risk in relation to road environment is defined by three elements

1. Probability – chance of occurring of event
2. Exposure – The number of Vehicles
3. Severity – The effect of various factors such as buses, trucks, speed zone, safety rules & regulations etc.<sup>(4)</sup>

#### **Incidences:**

According to recent census India contributes 27% of global road traffic accidents. India stands on second number. Every year there 1, 05,725 deaths occur out of which 84% males and 16% females in 12- 19 year age group.<sup>(5)</sup> In general adolescents have most of their accidents in cars when being driven by people of their parents' age. But adolescents of 12 and 13 begin to travel with drivers only a couple of years older than they are. Many of these 14 and 15-year-old drivers show off, usually by driving too fast - often because they believe this will impress their friends.<sup>(6)</sup> According to projection census of India, 2009, children age 14 year and younger comprise 7% of the fatalities.<sup>(7)</sup>

According to the WHO, “Over 50% of deaths are among adolescents in the age of 13–20 yr. In other words, the WHO believes that the majority of RTA victims are young. <sup>(8)</sup> Therefore, the issue needs more attention and support from every individual in all communities around the world. Youth are the permanent wealth and health of any society. They are the precious treasure of any developing nation. <sup>(9)</sup>

#### **Types of Accidents:**

1. Bus and coach accidents; collision of bus with pedestrian, motorcycle, bus or bicycle

2. Car accident; collision of car with pedestrian, bicycler, car, bus and motorcycle

3. Cyclor; crash of bicycle with pedestrian, bicycler, motorcycle, bus or car

4. Motorcycle accident; motor bike collide with pedestrian, bicycler, motorcycle or car

5. Pedestrians accident; smash and crash of pedestrians with bicycler, motorcycle, car or bus/lorry <sup>(10)</sup>

### **Causes of traffic accidents:**

If we talk about the causes of road traffic accidents in India as well as globally human error is main reason for the crashes. Sometime other factors such as fog and road conditions also contribute to number of accidents. Following are the enlisted causes of road traffic accidents among adolescents.

**1. Tailgating** – Follow or drive hazardously close. Adolescents are extremely impatient, some people do it without thinking, just following traffic they get a bit close, but then they back off as you accelerate way. Some drivers tailgate deliberately though and these are the ones that are the most dangerous. They are just behind you flashing their headlights in an effort to move you, but of course there is nowhere to go as you are in the process of overtaking. This impatient act usually leads to some dangerous consequences.<sup>(11)</sup>

**2. Undertaking** – adolescents usually have some kind of adventurous attitude on the road. They try to leave behind every one on the road. Some time drive with their age mates or peer group or sometime in the process of impressing other they just overtake without seeking the room to pass some conveyance on the road.<sup>(11)</sup>

**3. Poor lane discipline** – Some drivers are all over the place and they don't seem to realize that they are supposed to stay in between those white dashed lines.

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**4. Speed-** Speed is the single biggest factor contributing to road deaths. Over 40% of fatal collisions are caused by excessive or inappropriate speed.

- **Excess speed** is defined as exceeding the speed limit.

- **Inappropriate speed** is defined as driving at a speed unsuitable for the prevailing road and traffic conditions. <sup>(11)</sup>

**5. Rash driving & violation of rules-** it's one of the common problem among all the adolescents to drive carelessly. They drive fast and least they follow traffic rules. Gradually this fun drives change into crash injury or death. <sup>(12)</sup>

**6. Failure to understand signs** - Most of the adolescents on the road are not able to understand the traffic signs. They drive conveyance with their own approximation and avoid traffic signs. This act always causes harm to others and their self as they collide with other vehicle or pedestrian.<sup>(13)</sup>

**7. Alcohol & drug abuse-** some of the adolescents are adjoining the company of their peers as they find them right all the way. So some time they drink and use drugs afterward they drive too. They are confused and less control over senses leads to some fatal consequences.<sup>(14)</sup>

**8. Road Conditions** - Potholes, damaged road, eroded road merging of rural roads with highways, diversions, illegal speed breakers. This is common among all age groups but reason may be inability of adolescents to handle vehicle in these situations and conditions as they don't reduce speed. <sup>(15)</sup>

**9. Avoiding Safety Gears like seat belts and helmets** - Use of seat belt in four-wheeler is now mandatory and not wearing seat belt invites penalty, same in the case of helmets for two wheeler drivers.

Wearing seat belts and helmet has been brought under law after proven studies that these two things reduce the severity of injury during accidents. Wearing seat belts and helmets doubles the chances of survival in a serious accident. Youngsters do not wear safety gears as it cover their face and most of the time they feel no need to wear it. <sup>(15)</sup>

### **3. Impact of RTAs**

#### **Physical Effects**

One of the most serious effects of road traffic accidents worldwide is physical injuries to young children. Death is considered the major consequence of physical injury. Deaths from road traffic injuries account for around 25% of all deaths from injury. Death is the end of human function and production. After that, physical disability varies in harshness. Disability into two parts: total and partial. Total disability consists of head and spinal injury; whereas, partial consists of lacerations, loss of limbs or fractured bones. The victims of head and spinal injury may be unable to return to their normal lives. <sup>(16)</sup>They may even require full care all the time. Usually, these conditions are permanent and there are no actual treatments or cures because of the direct injury to the brain and spine, although, there are some rare cases that show physical improvements with limited movement. Often, these patients stay at the hospital for a long time. As for partial injury, there are many examples, for instance, fractures of bones, loss of limbs, abrasions, lacerations and blunt injury. They will stay in hospital until finishing their treatment, and then they will be discharged to their homes. Also, the most common complaint of RTA patients is the persistence of pain after injury. <sup>(17)</sup>

#### **Psychological Effects**

Another serious consequence of road traffic accidents is psychological problems, which can have a substantial impact on the survivors of road traffic accidents and their families. Many psychiatric disorders that result from RTAs. <sup>(18)</sup> Many

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studies show that one- third of young survivors experience a psychological disorder in the early stages and about 25% manifest symptoms for up to 1 year later. <sup>(19)</sup> In other words, young children may have mental problems after road traffic accidents. There are several different types of disorders. The common disorders are Acute Stress Disorder (ASD), Post-Traumatic Stress Disorders (PTSD), anxiety disorders, depression and mood disorders. If we take Post-Traumatic Stress Disorders (PTSD) as an example, we find that PTSD is considered a serious disorder among young children. It can happen in early or in later stages. Vary during and after the accident. <sup>(20)</sup>

These symptoms can be intense fears, helplessness, and loss of control. Victims can lose their meaning of life and lose attachment to their surrounding environment.

#### **Effects on Families**

Families also suffer from their children's involvement in road traffic accidents. They are considered another hidden victim of RTAs, and need care and support just like other RTA victims or survivors. Families can be affected psychologically and socially. High levels of anxiety, depression, irritability and mood disturbances are the most common psychological symptoms among victims' relatives. This is related to the shock of losing their close relatives or loved ones. The distress can be temporary or permanent, which really depends on how close they were to the victims. As well, social interaction can be affected. It will be diminished over time if no proper intervention takes place. Families can experience several interpersonal difficulties such as family friction or poor tolerance. <sup>(21)</sup>

#### **Effects on Countries**

All the countries in the world are affected by youth road traffic accidents. RTAs influence several sectors in of society. One of the most important influences is on the youth of these countries. Imagine if these countries lost all their young people; they would become aged nations. With all due respect to older people, in reality, the young generation is

important to prolonging the life of nations. Because of this, there is a necessity to have the youth healthy and capable of functioning efficiently. RTAs also influence the wealth of these countries. <sup>(22)</sup> RTAs cost the global community about US\$518 billion & it increases economic burden on the country. Thus, road traffic accidents cost human lives, resources, facilities and money. How does this happen? First, the accident kills or handicaps manpower. Then, it damages facilities, and nations need adequate resources to treat this issue. As a result, this presents the economy with a new kind of crisis. <sup>(23)</sup>

#### **4. Actions Required for Traffic safety:**

Road safety is a collective effort of the government and people. While government making an efforts for ensuring proper condition of the roads and enforcing strict adherence to traffic rules, responsible driving and the right attitude of people with respect to traffic rules is perhaps the first step on the long road to 100% safety on the roads.

“Road traffic safety defined as where the risk to all road users is suitably low” <sup>(24)</sup>

It is necessary to understand the various traffic signs and understand the traffic rules. It will help to avoid the accidents. Some of the important traffic rules and precautions are as follows:

1. Knowledge of traffic signs/rules: one has to take proper driving lessons. Small inductions and teachings can be a provision to make them familiar with various traffic signs used by the traffic administration on the roads. It will be helpful if it includes as a part of their education program. Some of the instructions of traffic safety lesson are as following

- Pedestrians have to cross the road only from zebra lines.
- Always keep on looking both side and walk slowly while crossing the road.

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- Always walk on the side elevated footpath of the road.
- Always walk across the road on green signal.
- Traffic lights proceed in the arrangement of

Red- means stop

Yellow- get ready

Green – walk across <sup>(25)</sup>

- If you walk on the road in night always walk against headlights so that you will be visible to the driver of another conveyance.

- Hold the lamp in night walk to prevent accident. <sup>(26)</sup>

- Regularly check the tyres, brakes, chain and light of bicycle to prevent accident.

- Don't allow to sit anyone on the crossbar of bicycle. Carry anyone on tendon of bicycle.

- While cycling before signaling slow down and look at the back.

- Helmet is one of important safeguard among motorcyclists and cyclists. So wear it while driving. <sup>(27)</sup>

- Always overtake from the right side.

- While driving two wheel or four wheel motor vehicles always flash dipper, slow down and blow horn before a turn.

- Light, horn and brakes are important/ vital parts to keep on check. It helps to prevent accidents. <sup>(28)</sup>

- Seat belts, airbags and brakes important safety measures of four wheelers

- Always get down from the bus when it's totally stop
- Get up in the bus from the back door and get down from the front.
- Always reduce your speed near hospital, school and in any crowded area.
- A detail comprehension of traffic signs before driving. <sup>(29)</sup>

2. As they say speed thrills and also kills: Keep a rein on your speed, so that one is in better control of the vehicle. Find out the causes you to speed up. Whether there an urge to speed when you have a driver close behind or it an effort to keep up with the traffic flow. Another reason may be you simply enjoy over-taking. It is especially important to lower speed while nearing schools, on narrow roads, hilly areas, rural areas and when visibility is poor. Wet roads and speed is a perfect recipe for an accident. <sup>(30)</sup>

3. Obey traffic rules: Traffic rules have been designed with safety foremost in mind. It takes into account safety for all, including pedestrians. Follow the lane, and keep the required distance between vehicles. It is important to display appropriate indications/signals especially while changing lanes or before a turn. Respect for other drivers on the road is important to road safety.

4. Wear seat belts. Seat belts are life saving. A statistic has revealed that 63% of those who died in accidents had not strapped on their seat belts. According to the National Highway Transportation Safety Administration (NHTSA), lap-shoulder belt systems cut the risk of serious injury and fatality by 50 percent. Seat belts help in protecting the internal organs in a crash as it restrains the forward movement of the body to a great extent. It protects against head and neck injuries by minimizing head contacts and keeps the passenger in place.<sup>(31)</sup>

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5. Pedestrians and children come first – Preference is to be given to pedestrians and children crossing the road.

6. Read caution signs: Caution signs are very important as they warn about accident prone spots so that the driver can reduce the speed of the vehicle. Signboards on the road are vital clues about road design so that the person behind the wheel can exercise caution.

7. Air bags in vehicles: Airbags are a must to cushion the impact in case of accidents.

8. Reflectors: Reflectors to be used on the rear of the vehicle. Ensure all lamps are in working condition. Hazard lamp should be switched on when the vehicle is parked on a highway.

9. Vehicle condition- Vehicle must be in good working condition- there should be no compromise on the quality of brakes and tyres. Further, it is imperative to inflate tyres with the right air pressure to avoid tyre bursts on road.

10. Roads condition-Roads should be in good condition with proper sign boards. It is vital to install reflectors on roads so that deviations and medians are clearly visible to drivers. <sup>(32)</sup>

11. Avoid drugs and alcohol while driving- Drugs and alcohol can slow down reflexes, disrupt accurate judgments, and cause mental alertness to dip. They have been the reason behind many fatal road accidents.

12. Sleep-Falling asleep behind the wheel has led to many grave mishaps on the road. Drivers must rest well as the lack of it can have an adverse effect on mental alertness, slow down reflexes, and even cause momentary sleepiness behind the wheel. What follows is a disaster.

## **5. Conclusion**

Road traffic accidents affect youth worldwide. RTAs are considered one of the main causes of morbidity and mortality around the world. Youngsters are the main victim of the accidents. This will be a global burden in the coming years if it isn't resolved soon. Drink, less traffic sense, lack of knowledge, tendency to take adventures and show off are the main leading causes of accidents among adolescents. It affects the world in general but the human beings specifically. It results in painful experiences among victim, family and relatives. These effects may be physical, psychological and economic loss. Traffic safety is an essential part of public health and accident preventions. Most of the people are not aware about the keen importance and need of traffic safety measures among adolescents. Traffic safety is one of the vital components of interventions related to healthy & prosperous nation. Careful and adequate interventions need to be introduced and educated among adolescents to prevent traffic accidents. Beside that health personnel play an important role in educating public about the provisions and methods of traffic safety among young generation. Our Administrative bodies are refining and discovering more effective rules and regulations to decrease numbers of accidents and fatalities among adolescents as they are more prone segment of the population. There is need to conduct further research in the field of traffic safety to plan, implement interventions and evaluate the effectiveness of interventions. Findings of the study will act as a keen support to form layout better and more improvised traffic safety provisions.

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