

Road Traffic Accidents Report

Community Medicine

F2 - 2022

| Name | ID |
|-----------------------|------------------|
| Ghada Alothman | 439200016 |
| Rima Alomar | 439200330 |
| Shatha Aldohair | 439200256 |
| Noura Alshathri | 439200427 |
| Duaa Alhomoudi | 439200468 |
| Sadem Al Zayed | 439202906 |
| Layan Alsanad | 439200032 |
| Norah Almasaad | 439200318 |
| Sarah Alaidarous | 439200480 |
| Sarah Alobaid | 439202871 |
| Shaden Alobaid | 439202852 |
| Manal Altwaim | 439200206 |

Objective 1: Describe the epidemiology and the magnitude of injuries particularly road traffic accidents globally and in Saudi Arabia

- **Globally⁽¹⁾**

- Every year, over 1.3 million deaths are attributed to RTAs.
- Pedestrians, cyclists, and motorcyclists account for more than half of all RTAs deaths.
- More than 90% of RTAs deaths occur in low- and middle-income countries.
- Young males under the age of 25 account for 73% of all road traffic deaths.
- Road traffic injuries are the leading cause of death for children and young adults aged 5-29 years.

- **In Saudi Arabia**

- RTAs account for 8.75% of all deaths⁽²⁾.
- RTAs are the **sixth leading cause of death**⁽²⁾.
- RTAs death rate is 24 per 100,000 people, compared to 10 in the US and 5 in the UK. By 2016, it reached 28 per 100,000⁽³⁾.
- RTAs are the **leading cause of death for 16-30-year-old males in KSA**⁽⁴⁾.
- Accident to death ratio is 32:1 (compared to 283:1 in the US)⁽⁴⁾.
- Accident to injury ratio is 8:6 (compared to the international average of 8:1)⁽⁴⁾.

Objective 2: Risk factors for road traffic injuries⁽¹⁾

- **Speed**
 - The higher the speed, the less time a driver has to stop to avoid a crash.
 - Increase in speed is directly proportional to the likelihood of a crash.
 - Increase in speed is directly proportional to the severity of the crash's consequences.
- **Driving under the influence of alcohol and other psychoactive substances**
 - Increases the risk of a crash that results in death or serious injuries.
 - The risk of a road crash when a driver is alcohol-impaired varies with age.
 - Teenagers are more likely to be involved in a fatal crash than older drivers.
 - In case of drug-driving, the risk of RTAs changes depending on the drug used.
- **Non-use of motorcycle helmets, seat-belts and child restraints**
 - Correct helmet use can lead to a significant reduction in the risk of fatal injuries.
 - Wearing a seat-belt reduces the risk of death among drivers and front seat occupants.
- **Distracted driving**
 - Using mobile phones increases the likelihood of accidents **4 times** compared to drivers who do not use mobile phones while driving.
- **Unsafe road infrastructure**
- **Unsafe vehicle**
- **Inadequate law enforcement or traffic laws**

Objective 3★: Understand principles of injury particularly road traffic injuries prevention and control⁽⁵⁾

Activities over the decade needed to take place at local, national, regional and global levels, but the focus was primarily on national and local level actions. Within the legal constructs of national and local governments, countries were encouraged to implement activities according to five pillars below:

| | | | | |
|--|--|--|--|---|
| Pillar 1 Road safety management | Pillar 2 Safer roads and mobility | Pillar 3 Safer vehicles | Pillar 4 Safer road users | Pillar 5 Post-crash response |
|--|--|--|--|---|

Pillar 1: Road safety management

- Analysis of national traffic-crash data to set realistic and long-term goals for national activities.
- Sufficient funding for the implementation of activities.
- Create and support data systems for on-going monitoring and evaluation for systems that measure and monitor road traffic deaths, injuries and crashes, and intermediate outcomes (such as average speed, helmet-wearing rates, seat-belt wearing rates, etc.).

Pillar 2: Safer roads and mobility

- Maintenance and improvement of existing road infrastructure with the help of road authorities.
- Development of safe new road infrastructure that meets the needs of all users.
- Research and development.

Pillar 3: Safer vehicles

- Implementation of new car assessment programs in all regions of the world in order to increase the availability of consumer information about the safety performance of motor vehicles.
- Encourage research into safety technologies designed to reduce risks to vulnerable road users and application of pedestrian protection regulations.

Pillar 4: Safer road users

- Increase awareness of road safety risk factors and prevention measures.
- Set and seek compliance with speed limits and evidence-based standards and rules.
- Compliance with transport, occupational health and safety laws, standards and rules for safe operation of commercial freight and transport vehicles, passenger road transport services and other public and private vehicle fleets to reduce RTAs.

Pillar 5: Post crash response

- Develop hospital trauma care systems and evaluate the quality of care through the implementation of good practices
- Prehospital care systems, including the extraction of a victim from a vehicle after a crash.
- Development of post crash response by encouraging research into this field

Objective 4★: Apply injury epidemiology principles to road traffic incidents⁽⁶⁾.

The application of injury epidemiology principles to RTA is essential to clear the nature of injuries, and analyze factors that help us in selecting the most cost-efficient and effective methodologies to guide in injury prevention.

| ★ | Human/Host | Vector/Agent | Environment |
|------------|---|---------------------------------------|--|
| Pre-event | Poor driving habits, substance misuse | Faulty brakes, bad tires | Slippery road |
| Event | Elderly, pre-existing medical condition | No airbag/ Car Seat | Tree blocking the road |
| Post-event | Lack of knowledge on how to respond to injury | Unprotected gasoline tank (explosion) | Slow emergency response, poor rehab programs |

(7)

In 1970, William Haddon developed a model that aims to identify factors related to injury in relation to different time periods (phases). Later, this became the most commonly used model in injury prevention.

The three factors explored by Haddon were:

- Human factor/host
- Vector/agent
- Environment (Physical/Socioeconomic)

These factors will interact and determine the **occurrence** and **severity** of injury in three phases:

- Pre-event
- Event
- Post-event

This model can be further utilized to:

- Evaluate the role of each factor in causing the injury
- Assist in developing preventative measures

Objective 5: Identify the programs for prevention and control for those problems in Saudi Arabia.

National Road Safety Center⁽⁸⁾

One of the road safety initiative projects within the National Transformation Program 2020. Which aims to: Reduce traffic fatalities **And** Improve traffic safety levels, through preparing and implementing a road safety data system.

The data system will contribute to the issuance of analytical reports of accidents and digital maps that show places of their occurrence. In addition to issuing national indicators.

Saher⁽⁹⁾

Automated System that covers major cities in Saudi Arabia and was established to improve the level of traffic safety.

- Works by utilizing digital cameras combined with the latest advances in Intelligent Transportation Systems (ITS).
- Detects traffic violations as speeding, running a red light, and using mobiles while driving.

Salamah (Saudi Traffic Safety Society)⁽¹⁰⁾

Aims to spread the concept and culture of commitment to traffic safety and to improve traffic behavior among community members and reduce the rates of accidents and deaths

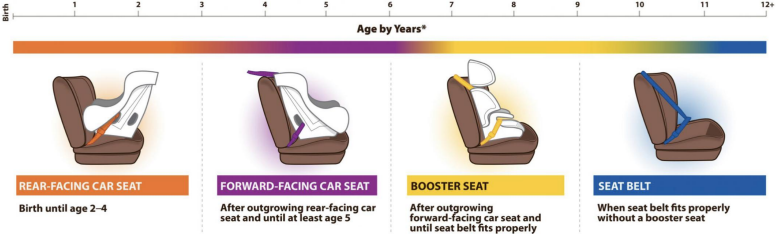
Goals:

- Development of scientific thought in the field of traffic safety and work to develop it.
- Achieving scientific communication between those interested in traffic safety.
- Providing scientific advice in the field of traffic safety to all governmental and private agencies.
- Developing the scientific and professional performance of those involved in traffic and traffic safety by holding courses and conferences.
- Facilitating the exchange of scientific production and scientific ideas between agencies and institutions concerned with traffic and traffic safety inside and outside the Kingdom.

Objective 6: Scenario discussion and it should be based on health education to prevent road traffic injuries (the scenario is attached below).

Scenario: you have seen a family (mother, father and 2 children aged 7 years and 6 years and an infant) who had a recent RTA; all members of the family have had a form of injuries ranging from mild to moderate. The father was driving the car and the mother was sitting in the front seat carrying the infant in her lap. None of them were wearing a car seat belt. The older child also had a previous history of head injury when he was playing in the main road of the street with his bicycle without wearing a helmet. **What is your educational plan for them?**

We should teach them that injuries and deaths are preventable, by making them acknowledge the following:

| Problem | Prevention method |
|---|--|
| <p>The baby was sitting in front on his mother's lap</p> | <p>Make sure children always ride in the back seat⁽¹¹⁾, buckled up or in car seats that are appropriate for their age, height and weight. The following picture displays the correct car seat from birth to 12+ year old children⁽¹²⁾.</p> <p>Using the correct car seat or booster seat can be a lifesaver. Make sure your child is always buckled in an age- and size-appropriate car seat or booster seat.</p>  <p>The infographic shows a timeline from Birth to 12+ years. Below the timeline are four illustrations of car seats: 1. Rear-facing car seat (Birth until age 2-4), 2. Forward-facing car seat (After outgrowing rear-facing car seat and until at least age 5), 3. Booster seat (After outgrowing forward-facing car seat and until seat belt fits properly), 4. Seat belt (When seat belt fits properly without a booster seat).</p> |
| <p>None of the family members were wearing a seat belt</p> | <p>Wearing a seat-belt reduces the risk of death among drivers and front seat occupants by 45 - 50%⁽⁴⁾. Therefore, wearing a seat belt on every trip is one of the easiest and most important things you can do to save your family. No matter how short the trip or whether you are in the front or the back seat it is essential to wear a seat belt⁽¹¹⁾.</p> |
| <p>The 7 year old child was <u>riding his bicycle on the main road</u></p> | <p>It's not safe for children or adults to ride their bikes on main roads. They should ride their bikes on safer infrastructure like sidewalks and dedicated lanes for cyclists. Also, parents should use safe crossings, such as at traffic lights, and avoid places that can hide a child from a driver's view⁽¹⁾.</p> |
| <p>The 7 year old child was <u>not wearing a helmet</u> when riding his bicycle</p> | <p>It's very important that helmets are worn as they can lead to a 42% reduction in the risk of fatal injuries. Parents should ensure that it's worn properly to prevent head injuries, it should cover the upper part of the forehead⁽¹⁾.</p> |
| <p>Other important safety tips for car drivers⁽¹¹⁾:</p> | <p>Obey speed limits. Drive without distractions (like calling or texting while driving). Never drive under the influence of alcohol or drugs.</p> |

References

1. Road traffic injuries [Internet]. World Health Organization. World Health Organization; 2021 [cited 2022Mar22]. Available from: <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>.
2. Road traffic accidents in Saudi Arabia [Internet]. World Life Expectancy. [cited 2022Mar22]. Available from: <https://www.worldlifeexpectancy.com/saudi-arabia-road-traffic-accidents>.
3. Turning the tide against road traffic accidents [Internet]. World Health Organization. World Health Organization; [cited 2022Mar22]. Available from: <https://www.who.int/about/accountability/results/who-results-report-2020-mtr/country-story/2020/turning-the-tide-against-road-traffic-accidents>.
4. Mansuri FA, Al-Zalabani AH, Zalat MM, Qabshawi RI. Road Safety and Road Traffic Accidents in Saudi Arabia. Saudi Medical Journal. 2015;36(4):418–24.
5. Global Plan for the Decade of Action for Road Safety 2011-2020 [Internet]. World Health Organization. World Health Organization; 2016 [cited 2022Mar22]. Available from: https://www.who.int/roadsafety/decade_of_action/plan/en/.
6. Petridou ET, Antonopoulos CN. Injury epidemiology. International Encyclopedia of Public Health. 2017;:258–74.
7. Holder I. Injury surveillance guidelines. Atlanta, GA: World Health Organization; 2004.
8. المركز الوطني لسلامة الطرق. [cited 2022Mar22]. Available from: <https://nrsc.gov.sa/>.
9. Saher system [Internet]. Traffic. [cited 2022Mar22]. Available from: https://www.moi.gov.sa/wps/portal/Home/sectors/publicsecurity/traffic/contents!/ut/p/z0/04_Sj9CPykssy0xPLMnMz0vMAfljo8ziDTxNTDwMTYy83V0CTQ0cA71d_T1djI0M_XA30g1Pz9L30o_ArApqSmVVYGOwH5Wcn1eSWIGiH1FSIJiWlpmsagBlKCQWqRrkJmbmqRoUJ2akFukXZLuHAWCkY5qs/
10. Safety Forum [Internet]. Saudi Traffic Safety Society | Safety Forum. [cited 2022Mar22]. Available from: <https://salamh.sa/en/safetyPlaces>
11. Global Road Safety [Internet]. Centers for Disease Control and Prevention. Centers for Disease Control and Prevention; 2020 [cited 2022Mar22]. Available from: <https://www.cdc.gov/injury/features/global-road-safety/index.html>
12. Child passenger safety [Internet]. Centers for Disease Control and Prevention. Centers for Disease Control and Prevention; 2021 [cited 2022Mar22]. Available from: https://www.cdc.gov/transportationsafety/child_passenger_safety/index.html