

IFMSA Policy Document Road Safety and Health

Proposed by the IFMSA Team of Officials

Adopted at the 73rd IFMSA General Assembly March Meeting 2024

Policy Commission

- Salman Khan (Liaison Officer for Public Health Issues) - lph@ifmsa.org
- José Diogo Soares (ANEM Portugal)
- Krysta Cutajar (MMSA Malta)

Policy Small Working Group

- Salman Khan (Liaison Officer for Public Health Issues) - lph@ifmsa.org - *SWG Co-coordinator*
- José Diogo Soares (SCOPH External Affairs Assistant, ANEM Portugal) - *SWG Co-coordinator*
- Mohamed Kareem Abdullatif (IFMSA Egypt) - *SWG Co-coordinator*
- Hossam Abdelmohsen Zaki (IFMSA Egypt)
- Farah Waseem (IFMSA-Pakistan)
- Esraa Amr Mohmed Hany (IFMSA Egypt)
- Simona Szabóová (IFMSA- The Netherlands)
- Adriel Camilleri (MMSA Malta)
- Aaradhana Vaghela (MSAI India)

Acknowledgement for the external expert reviewers

- Youth For Road Safety (YOURS)

Policy Statement

Introduction

In an era where an intricate web of roads facilitates global connectivity, the impact of road traffic on human health has become an urgent and pervasive concern. However, the impact of road traffic extends beyond the immediate toll on human lives, manifesting as high economic and healthcare burdens. In this complex landscape, not only does the vision of the United Nations Decade of Action for Road Safety and the Sustainable Development Agenda matter, but the role of youth and medical students also emerges as pivotal. The intricate web of challenges posed by road traffic emphasises the imperative collaboration between youth-led actions and stakeholders to shape a safer and healthier future for all.

IFMSA Position

The IFMSA recognises the alarming number of 1.19 million lives lost annually due to road traffic collisions, emphasising the urgent need for preventive measures through education and advocacy. The inequities in road safety outcomes among various population groups are acknowledged, prompting IFMSA to advocate for equitable access to safe infrastructure, robust enforcement of traffic laws, socioeconomic interventions and sustainable transportation alternatives. The organisation underscores the pivotal role of youth and medical students in effecting change, emphasising the importance of engagement, capacity-building, and community-driven initiatives. By encouraging collaborative global action, research-driven policies, and a commitment to data collection, IFMSA aims to contribute to a collective effort to create a safer and healthier world for all.

Call to Action

Therefore, the IFMSA calls on:

Governments to:

- Develop a comprehensive policy for the national road safety program and establish road safety lead agencies with well-described targets, objectives and implementation strategies involving inter-sectoral coordination.
- Implement legislation surrounding blood alcohol concentration testing, random drug testing, seatbelt and child restraints, motor vehicle safety standards, texting and driving, helmet laws and helmet standards regulations followed by appropriate penalisation for deterrence.
- Improve transportation infrastructure with wide roads, pavements, and bicycle lanes, considering local topographies and population needs for maximum safety.
- Design cities and communities focusing on sustainable Road Safety Designs, prioritising the protection of groups placed at a higher risk, vulnerable road users, and emphasising sustainability and inter-connectivity in public transport redevelopment.
- Set protocols and procedures for effective emergency crash response to mitigate the health and socio-economic impacts of road traffic accidents.
- Provide financial and health safeguards to groups at a higher risk of road traffic accidents through measures like mandatory third-party policies.
- Collaborate with civil society groups, young people, non-governmental organisations, the mass media industry and educational institutes to develop extensive, effective and impactful behaviour change communication campaigns targeting young people, groups with a higher risk and the general public.

United Nations, WHO and other relevant International Agencies (including Non-Governmental Organisations) to:

- Promote the incorporation of safe, sustainable and inclusive transport systems as a high-priority development goal in national and international agendas focusing on development in lower middle-income countries.
- Advocate for achieving targets outlined in the Global Plan for the Decade of Action for Road Safety, 2021 to 2030, emphasising the health, climate, and socio-economic impacts of accidents.
- Raise awareness among member states about the importance of robust national policy frameworks and budget allocations for road network safety with cross-sectoral implementation.
- Capacitate member states on various evidence-based strategies for promoting road safety policies, monitoring, evaluation, financing, and implementation.
- Facilitate international cooperation and strengthen global and regional coordination to protect all groups with a higher risk.
- Develop road safety plans and infrastructure and provide consultation and financial aid to lower- and middle-income countries.
- Advocate for road safety inclusion in national policies and mobilise local cooperation.
- Support survivors and families of road accidents, emphasising financial, psychological, and vocational rehabilitation for groups with a higher risk.
- Advocate for meaningful youth engagement in shaping road safety and sustainable mobility practices

Vehicle Manufacturers and the Private Sector to:

- Design vehicles meeting global and national safety and emissions standards, integrating automated technologies for user guidance, crash protection, and environmental sustainability.
- Establish business frameworks promoting safe and sustainable road transport throughout the supply chain, evaluating vehicle conditions, driver certifications, and relevant data.
- Implement an employee commute policy incentivising sustainable transportation, disincentivising personal vehicles, and penalising reported unsafe collective beliefs.

Healthcare facilities to:

- Provide emergency medical services and basic health training to all operators and drivers to ensure minimum trauma care after road accidents.
- Enhance health data collection to evaluate trauma causes, injury severity, interventions, and clinical outcomes, which will inform future health protocols.
- Deliver basic emergency trauma care, stabilisation, and resuscitation services at all healthcare levels to reduce significant morbidity from accidents.

Universities and Educational institutions to:

- Promote road safety in school and college curricula through discussions, campaigns, action groups, and workshops to encourage the early adoption of safe practices.
- Encourage higher education research on morbidity, risks, mortality, and interventions related to road accidents and their prevention.

IFMSA NMOs and medical students:

- Advocate for integrating road safety and health into medical curricula and collaborate with stakeholders to prioritise road safety.
- Conduct local, national, and international activities and workshops to educate the public on road safety and health, foster awareness, and encourage behaviour change for safer roads.

Position Paper

Background information

Technological advancements have made transportation more accessible than ever, resulting in a substantial increase in vehicles on the road. Consequently, road traffic has become a common occurrence, raising significant concerns about safety, including accidents, pollution, and adverse effects on human health. The alarming statistic emphasises this heightened concern that approximately 1.19 million lives are lost each year due to road traffic collisions, equating to a rate of 15 road traffic deaths per 100,000 population.[1]

However, these fatality rates are not uniform among different populations, groups, and socioeconomic backgrounds, owing to various factors such as infrastructure, vehicle safety, and the enforcement of traffic laws. [2] Mitigating the risk of Road Traffic Injuries (RTIs) and fatalities requires substantial changes in legislation and regulations related to road safety. Regulatory interventions, such as implementing speed limits, seatbelt laws, and helmet laws, along with road engineering interventions, play a crucial role in addressing these challenges. [3]

Discussion

1. Road Traffic Impact on Human Health

Throughout history, effective transportation has always been a priority of humanity, enabling the exchange of ideas, resources and cultures across vast distances. With technological development, transportation has become more accessible than ever, increasing the amount of vehicles on the road. As a result, road traffic has become commonplace, with road safety becoming a paramount concern due to accidents, pollution and other negative impacts on human health.

1.1 Road Traffic Injuries (RTIs) and Deaths

It is estimated that approximately 1.19 million lives are lost each year due to road traffic collisions, corresponding to a rate of 15 road traffic deaths per 100,000 population. As of 2019, RTIs remain the leading cause of death for children and young people aged 5-29 years and are ranked as the 12th leading cause of death for all age groups. [5] Between 20 and 50 million more people suffer non-fatal injuries, which can cause significant disabilities. The majority of this burden is sustained by road users at a higher risk, such as pedestrians and cyclists, as well as motorcyclists and persons with disabilities, in low and middle-income countries. [6]

RTIs can also cause considerable economic losses to the persons affected, their families, and to countries as a whole, arising from the costs of treatment and loss of productivity which result from death, disability and loved ones taking time off from work or school to care for the injured, with an estimated worldwide cost of US\$1.8 trillion in 2015-30. [7]

1.2 Human Health Impacts

Aside from causing injury and death, road traffic can have profound effects on other aspects of human health, including the following:

- *Air Pollution*
Road Traffic is a major source of air pollution in urban areas, emitting pollutants such as carbon monoxide, particulate matter and volatile organic compounds. These substances have been linked to respiratory and cardiovascular diseases, reproductive and central nervous system dysfunctions, as well as cancer and premature death. [8]
- *Noise Pollution*

An often overlooked aspect of road traffic, noise pollution has been associated with cardiovascular disease, diabetes, hearing impairment, adverse reproductive outcomes and neurological disorders. Noise pollution is primarily a result of sleep disturbance and chronic stress. [9]

- **Sedentary Behaviour**
Road traffic can be a significant source of sedentary behaviour, defined as any waking activity that involves low energy expenditure and is performed for prolonged periods. Sedentary behaviour can have adverse effects on physical and mental health, such as increasing the risk of obesity, diabetes, cardiovascular disease, depression, and anxiety. [10] Road traffic can contribute to a sedentary lifestyle by discouraging active modes of transportation such as walking or cycling, especially in urban areas where safety concerns may deter people from engaging in physical activity outdoors.
- **Climate Change**
As road transport is a significant source of air pollution, it directly contributes to climate change. Road transport is the most important pollution source among transportation methods due to the combustion of petroleum-based products such as gasoline. [11] Climate change is a fundamental threat to human health, affecting the physical environment and all aspects of natural and human systems. [12]

2. Road Traffic Impact on Environmental Health

Road traffic, a hallmark of modern life, has undeniably revolutionised transportation and connectivity. However, the conveniences bestowed by vehicular mobility are not without a considerable environmental cost. The multifaceted impacts of road traffic on environmental health encompass deforestation, noise, and air pollution. [13]

One profound consequence of road traffic lies in deforestation, predominantly triggered by the construction new roads and highways. As infrastructural developments expand to accommodate the burgeoning number of vehicles, vast swathes of forests succumb to clearance, resulting in the loss of biodiversity and disruption of ecosystems. [14] The Amazon rainforest, renowned for its biodiversity, is a poignant example. Research establishes a direct correlation between road development and escalating deforestation rates in the Amazon basin. [15]

In addition, road traffic emerges as a significant contributor to noise pollution, impacting both wildlife and human health. The elevated noise levels result in natural habitats, affecting the communication and behaviour of animals. For humans, chronic exposure to traffic noise has been linked to stress, sleep disturbances, and adverse cardiovascular effects. [16] The World Health Organization (WHO, 2011) conducted a study in urban areas, revealing a compelling association between long-term exposure to road traffic noise and an increased risk of heart disease. [17]

Arguably, the most recognised consequence of road traffic is air pollution. Vehicle emissions release a toxic blend of pollutants, including particulate matter, nitrogen oxides, and volatile organic compounds, posing severe threats to air quality and respiratory health.[18] Cities like Delhi, India, stand as stark examples of the repercussions. A report by the Indian Ministry of Environment, Forest, and Climate Change (MoEFCC, 2018) underscores the role of vehicular emissions in the hazardous levels of particulate matter, contributing to the city's alarming air quality. [19]

Recognising the global impact of road traffic on environmental health, the World Health Organization (WHO) and the United Nations (UN) have initiated comprehensive efforts. The WHO, in its Global Status Report on Road Safety (2018), underscores the need for sustainable and safe transportation systems to mitigate the environmental and health risks associated with road traffic.[20] The United Nations Sustainable Development Goals (SDGs) also highlight the importance of sustainable urban development and responsible consumption and

production (UN, 2015). [21] These goals emphasise the necessity of adopting eco-friendly transportation alternatives and reducing the environmental footprint of road traffic.

3. Inequities in Road Safety

Road safety inequalities refer to the unequal distribution of road traffic injuries and fatalities among different population groups, regions, or socioeconomic backgrounds. These inequities can arise due to various factors, including infrastructure, vehicle safety, enforcement of traffic laws, education, and socioeconomic conditions. [22] It is evident in the following key points:

- **Geographic inequities:** it was highly apparent that there is a vast difference between the rate of road accidents in low-and middle-income countries. Research-based studies revealed that each year, between 20 and 50 million people have a mobility disability, and 1.2 million people die as a result of road traffic crashes, and 90% of these deaths happen in low-and middle-income countries. [23]
- **Age:** Road safety inequities across different age groups and genders can be observed. Young people, particularly adolescents and young adults, are at higher risk due to factors such as inexperience, risk-taking behaviour, and lack of adherence to traffic rules. Young people, adolescents and young adults, in particular, are at higher risk due to factors such as peer influence, lack of road safety education and targeted awareness. Efforts to involve young people in policy-making processes regarding road safety are crucial to address these disparities and ensure their voices and concerns are considered in developing national policies.
- **Gender:** Additionally, males tend to have higher rates of road traffic injuries and fatalities compared to females, which can be attributed to differences in driving behaviour and exposure to risk. [24] Women often encounter safety challenges that are distinct from those faced by men. These challenges include harassment, limited mobility at night, and the high cost of transportation, which can impede their access to education and healthcare and hinder their ability to participate in the workforce. Twice as many women pedestrians are killed as men.[25]
- **People living with disability:** One of the socially disadvantaged groups in the transport system is road users with disabilities.' Data has shown that people with disabilities are less likely to travel. There are also major inequalities for youth living with disabilities. The challenges faced by people with disabilities extend to the youth population, as approximately one in ten children worldwide have a disability. This highlights the urgent need for improved road infrastructure that caters to the specific needs of vulnerable road users, including people with disabilities.[26]
- **Socioeconomic Inequities:** Road safety inequalities can be influenced by socioeconomic factors. Underserved communities may face higher risks due to factors such as inadequate road infrastructure, lack of access to safe transportation alternatives, and limited education on road safety. These communities may also have limited access to quality healthcare, which can impact post-crash response and outcomes. [27]

4. Road Safety and Groups at a Higher Risk

According to the ITS Directive, vulnerable road users (VRU) are defined as "non-motorised road users, such as pedestrians and cyclists as well as motorcyclists and persons with disabilities or reduced mobility and orientation." [28] Vulnerable users are at risk of being in traffic accidents for many reasons. A higher risk of road traffic injury is present for persons with mobility disabilities; this represents a social disparity that includes a lack of safety and security, less agency over mobility, and social exclusion. [29] Disabilities, injuries, and fatalities are not the only implications that arise from traffic accidents for all road users. In many road accidents, there is more than one group of road users. All participants in the traffic are responsible for acting in ways that do not put other road users in danger, but it is not uncommon for drivers to pass road users at a higher risk, at an inappropriate speed. Promoting positive social norms in drivers towards other groups of road users can help reduce speed and greater distances when passing other groups, such as cyclists. [30] Road systems can represent a risk for

VRUs; systems without safe spaces for pedestrians, cyclists, and motorcyclists are dangerous due to the potential integration with mass traffic, which can result in more accidents and heavier reliance on individual motor vehicle transportation. Consequently, more reliance on individual vehicles affects other aspects of public health, like heart and lung illnesses. [31]

5. Risk Factors for Road Safety

5.1 Individual Factors

Substance Use: Driving under the influence of alcohol or other psychoactive substances presents a significant risk factor for road traffic injuries. It is a key risk factor for 27% of all road injuries. In the case of drunk driving, road users who have alcohol concentration in their blood have a significantly higher risk of being involved in a crash. Even at low blood-alcohol levels, drivers experience problems with concentration, coordination, and identifying risks surrounding and on the road. Additionally, drunk-driving crashes can be more severe or more common when high speed or poor road design is involved. [32] In the case of driving under the influence of mind-altering drugs, the risk of road traffic injury varies depending on the psychoactive drug used. [33] Psychoactive drugs affect the functioning of the brain. They may lead to impaired driving, such as delayed reaction time, information processing, and reduced perceptual-motor coordination, motor performance, and attention. [34]

Age: Road traffic injuries are the leading cause of death for children and young adults aged 5–29 years. [35] There are more than 600 preventable road deaths among children and young people each day. Younger children are particularly at a higher risk because they are harder to be seen by drivers, less able to recognise dangerous situations and less likely to make proper decisions about safe collective beliefs. [36] Two-thirds of road traffic fatalities occur among people working age (18–59 years). Young drivers (18–21 years) reported higher rates of distracted and fatigued driving, showed higher rates of perceived social and personal acceptability of these collective beliefs, and were also the least likely to believe distraction and fatigue to be frequent causes of road crashes. Older drivers aged 65+ reported even lower rates of these collective beliefs. [37] However, they have the highest risks compared to other age groups of drivers; they are frailer, making them vulnerable to personal injury or fatality risk in the event of a crash. [38]

Mobile Phones: Drivers using mobile phones are approximately four times more likely to be involved in a crash than drivers not using a mobile phone. Consequences of using phones while driving include slower reaction times (notably braking reaction time, and reaction to traffic signals), difficulty staying in the correct lane, and difficulty keeping the correct following distances. [39] Distracted driving is a substantial contributor to an increase in traffic accidents globally. Some alternatives, such as hands-free phones, are not much safer than hand-held phone sets because they still contribute to distracted driving. Another aspect of using mobile phones when driving is texting, which considerably increases the risk of a road accident. [40]

5.2 Infrastructural factors

Road infrastructure plays a significant role in influencing the likelihood or severity of a crash. Ensuring safe infrastructure for all users can substantially reduce road accidents and fatalities in these accidents as historically, road infrastructure has focused mainly on motorised transport while doing so often at the expense of safety for pedestrians, cyclists and motorcyclists (e.g., an undivided road with head-on risk built-in, a high-speed road with dangerous roadsides or an urban road with no facilities for safe pedestrian or cyclist movements). [41] Establishing clear, accessible, and substantial bicycle and motorcycle lanes can help reduce the number of bike/car accidents. The design of roads can have a considerable impact on the safety of all road users. Known interventions in establishing safer infrastructures include footpaths, cycling lanes, safe crossing points and other traffic calming measures. [42]

5.3 Public Transportation's Efficiency

Public transportation poses a higher risk of safety and security since there are more passengers in one vehicle simultaneously. [43] Providing service closer to residential areas, improving route designs, and improving transport safety to promote its use can help improve the overall quality and impression of public transportation. Cities are responsible for prioritising active mobility, upgrading public transport, introducing cleaner and safer vehicle technology, or building public support for road safety through awareness campaigns. [44] Safe and efficient public transport infrastructure can facilitate greater access to health, employment, education, and other services and encourage investment, making for fairer and more prosperous environments for citizens. [45] The problem of poor public transportation becomes worse in developing countries because of the lack of suitable and integrated approaches.

6. Economical Burden of Road Traffic Injuries and Death

6.1 Economic Burden on Health

The Global Burden of Disease Study estimated that road injuries accounted for 2.5% of the global DALYs in 2019. According to a study by the World Health Organization (WHO) in 2018, the direct medical costs of road traffic injuries accounted for about 1-2% of a country's Gross Domestic Product (GDP) in low-income countries, 1-3% in middle-income countries, and 2-3% in high-income countries. Also, according to a report by the World Bank, the estimated productivity losses globally due to road traffic injuries were approximately 1-3% of GDP. [46]

6.2 Overview of insurance policies

One of the cornerstones in promoting road safety is implementing insurance policies that aim to provide financial protection in case of traffic accidents. Some examples of it are:

- Motor Vehicle Liability Insurance: Motor vehicle liability insurance is mandatory in many countries. It covers the liability of the vehicle owner or driver for bodily injury or property damage caused to others in a traffic accident. [47]
- Comprehensive Insurance: Comprehensive insurance covers damage to the insured vehicle resulting from accidents, theft, vandalism, or natural disasters.
- Personal Injury Protection (PIP) Insurance: PIP insurance, also known as no-fault insurance, covers medical expenses, lost wages, and other related costs for the insured driver and passengers, regardless of who is at fault in an accident. [48]

7. Road Safety Legislation and Regulations

Mitigating the risk of RTIs and Fatalities involves changes in legislation and regulations related to Road Safety. When implemented with appropriate planning, monitoring, and evaluation, regulatory interventions such as speed limits, seatbelt laws, helmet laws, and road engineering interventions like roundabouts and traffic calming measures have been proven to prevent or mitigate incidents effectively. Through robust laws and regulations, governments can set speed limits, mandate safety features in vehicles, establish guidelines for driver education, and implement measures to curb risky social beliefs like drunk or distracted driving. Beyond reactive responses, effective legislation fosters a culture of prevention, fostering road environments where safety is prioritised and upheld. [49]

7.1 Approaches to Road Safety

Interventions implemented fall into three different approaches to road safety: the traditional approach, which targets human errors and road users; systemic approaches like sustainable safety, the safe system, and the UN decade of action, focusing on shared responsibility between road users and designers with distinct principles; and Vision Zero. Vision Zero, founded on ethical principles that prioritise human life, offers a more

comprehensive perspective, going beyond systemic approaches to provide a broader and more profound consideration of safety. [50]

7.2 The Systemic Approach and Vision Zero

The systemic approach to Road Safety represents a paradigm shift in interventions, focusing both on the natural shortcomings of human beings and the responsibility of transport system designers in safety promotion and prevention of RTIs. Sustainable safety, which originated in the Netherlands in the early 1990s, confirms humans' vulnerability to road traffic collisions and the importance of human error.[51] It seeks to prevent errors as far as possible or reduce their consequences through traffic system design. Its implementation thus far has shown positive results in the Netherlands, with a decrease in fatality rate from 811 deaths in 2007 to 610 in 2020 and 31 fatalities per million as compared to the EU average of 49 fatalities per million in 2018.[52]

The safe system approach marks a change in tactics towards pursuing the development and management of transport systems that are inherently safe from human errors and sharing responsibility between road users and road system designers.[53] Therefore, changes made to legislation or regulation should support interventions that improve safe system pillars, including Safe roads and roadsides, safe speeds, safe vehicles, safe road users and, more recently, post-crash care.[54] This approach is an integral part of the UN decade of action for Road Safety 2021-2030, which also focuses on the importance of multimodal transport and land-use planning and emphasizes the importance of a holistic approach to road safety.[55] Nonetheless, in certain countries that have worked to implement their safe system strategies, such as the UK, Sweden and the Netherlands, work is needed to describe further and improve said systems, and further research on the effectiveness of implementation is needed.[56]

Vision Zero is a further development of the safe system approach. First created in Sweden and adopted by the Swedish parliament in 1997, it sets the long-term goal of having zero fatalities or serious injuries from road traffic "accidents." Although the goal is not considered realistic, proponents believe there is no such thing as a traffic "accident" and every crash is avoidable.[57] By taking a public health approach to collisions, road safety is redefined as collisions are viewed as a preventable health threat. Vision Zero emphasises the importance of infrastructural development and traffic enforcement in attaining a safer road system. [58]

7.3 Current Situation

As of 2023, road traffic deaths have fallen slightly to 1.19 million annually. Nonetheless, they remain a persistent crisis. Among the member states of the UN, 108 countries have reported a drop in road traffic-related deaths between 2010 and 2021, and 10 countries have succeeded in reducing road traffic deaths by over 50%: Belarus, Brunei Darussalam, Denmark, Japan, Lithuania, Norway, Russian Federation, Trinidad and Tobago, United Arab Emirates and Venezuela, with 35 more countries making notable progress, reducing deaths by 30-50%.[59]

While the number of countries with legislation meeting WHO best practices for at least one of the five key risk factors has increased to 140, with 23 countries having modified their laws to align themselves, only six countries have legislation on all five key risk factors. Furthermore, only 35 countries have legislation that mandates the five core areas of vehicle safety equipment, with 79 countries having no legislation on vehicle safety.[60]

- *Speed Management*

The speed at which a vehicle travels directly influences the crash risk and increases the severity of sustained injuries and the likelihood of death resulting from collision. As a result, speed management remains an important focus point of road safety systems and legislation. Of the 170 countries that participated in the WHO road safety survey, 163 countries report having laws on speeding. Still, only 57 meet WHO best practice of a national speed limit, an urban speed limit of 50 km/h or lower, and the ability of local authorities to adapt speed limits to local contexts.[61]

Results can be observed even on a smaller scale, such as in Bogotá, Colombia. The city has significantly reduced traffic fatalities and injuries in recent years. Since adopting a Vision Zero approach at the administrative level, it has implemented several measures to reduce speed levels at specific arterial roads. This resulted in a 21% decrease in traffic fatalities in 2019 compared to the average from 2015-2018.[62]

- *Urban Planning*

As the number of people living in an urban area increases, urban planning becomes increasingly important in reducing the incidence of RTIs and preventing fatalities. According to the World Resources Institute, the most essential planning principles include:

- Connected and compact urban design
- Safer Vehicle Speed levels
- Management of arterial corridors
- Multimodal transportation, including walking, bicycling and mass transit[63]

Road safety legislation and systemic approaches are pivotal in addressing global road traffic injuries. Universal adoption of comprehensive safety laws, collaborative efforts, and ongoing research are imperative to eliminate road traffic fatalities. A unified global commitment is essential in achieving the ultimate goal of safer roads and protecting the well-being of all road users. Meaningful youth engagement is vital to creating effective road safety policies and regulations. Engaging young people in decision-making processes empowers them to contribute their perspectives, experiences, and innovative ideas to address road safety challenges.[64]

8. Global efforts on Road Safety and Health

Global efforts have seen increased collaborations in road safety and health. To address this challenge, the UN General Assembly passed Resolution A/RES/74/299, "Improving Global Road Safety," in September 2020, establishing the Decade of Action for Road Safety 2021-2030, with the ambitious goal of averting at least 50% of road traffic deaths and injuries by 2030. The Stockholm Declaration, which describes an integrated and comprehensive approach to road safety based on the Safe System principles, was approved at the 3rd Global Ministerial Conference on Road Safety in February 2020 and agreed upon by the resolution.

The UN emphasises how critical it is that Member States and the global community work closely together to meet the challenging goals for road safety included in the 2030 Agenda for Sustainable Development.

The World Health Organisation (WHO) helps nations improve their road safety laws, regulations, and procedures while offering technical advice, lobbying, and coordination for issues related to health and safety on the roads. The World Health Organisation (WHO) also publishes the Global Status Report on Road Safety, which tracks nations' advancements and obstacles in executing evidence-based treatments and accomplishing global targets.

The UN Road Safety Fund was created in 2018 to bring resources to the table and spur road safety initiatives. The Fund provides funding for initiatives that target the principal risk factors and gaps in the systems in low- and middle-income nations, emphasising bolstering law enforcement and emergency response, establishing partnerships and capacities, and strengthening legislative frameworks. [65]

In order to execute road safety resolutions, UN agencies and partners can coordinate globally thanks to the establishment of the UN Road Safety Collaboration (UNRSC) in 2004. It comprises representatives from UN agencies, NGOs, and Member States, and it focuses on developing guidelines, advocating for resources, supporting assessments and research, disseminating best practices, and exchanging information. Through

concerted efforts, the UNRSC seeks to address road safety comprehensively, build a culture of road safety within the UN system, and increase capacity. [66]

The resolution also includes the adoption of two universal Sustainable Development Goals related to road safety and health. Target 3.6 aims to halve the number of road traffic accident-related deaths and injuries worldwide by 2020, and Target 11.2 aims to improve road safety, notably by expanding public transport, with special attention to the needs of those in situations with higher risks, such as women, children, people with disabilities, and the older population. [67]

Supporting the low-income countries, the United Nations has launched projects aiming to strengthen and improve data on road traffic deaths by making existing health information systems better, which was in Senegal and Côte d'Ivoire via a collaboration between WHO and Ministries of Health, Transport and Interior. Other programs in Egypt AND Pakistan aim to identify legislative gaps in five critical areas to leverage the ongoing efforts of national governments in the field of road safety. [68]

9. Role of Young People and Medical Students in Road Safety and Health

9.1 Education and Awareness

Young people, especially medical students, have a unique opportunity to educate, advocate for, and contribute to road safety and health. Their medical knowledge and training equip them with the skills necessary to make a meaningful impact in reducing road accidents and promoting a safer and healthier society through the upcoming actions:

- Training: They can educate their peers and community members by conducting workshops, seminars, and awareness campaigns to provide information on safe practices, accident prevention, and non-disabled lifestyles. They can also advocate for developing educational materials and curricula related to road safety and health and incorporating road safety in the medical curriculum.
- First Aid and Emergency Response: To educate others about immediate actions to take in case of road accidents or injuries by organising first aid training sessions within their communities, which will help a lot in providing primary healthcare
- Research and data collection: work on studies that examine the epidemiology of road accidents, identify risk factors, and evaluate the effectiveness of interventions. By generating evidence, medical students can contribute to developing evidence-based policies and interventions to reduce road accidents and their associated health impacts.
- Trauma Management and Rehabilitation: Medical students can participate in rehabilitation programs aimed at helping accident survivors recover physically, emotionally, and psychologically. [69]
- Practice safety measures: Encourage young people to be role models. They have to be encouraged to start to follow certain basic things such as wearing a helmet while riding a motorbike, using a seat belt while driving, not driving under the influence of alcohol or drugs, not using mobile while driving, and knowing how to react in case of a road crash. [70]

9.2 Meaningful Youth Engagement in Road Safety

Encouraging meaningful youth engagement in road safety initiatives entails providing young individuals with opportunities to actively participate in decision-making processes regarding policies, strategies, and programs that impact their safety. This includes engaging them as leaders, partners, and beneficiaries, valuing their perspectives, concerns, and suggestions, and incorporating their input into developing road safety policies, strategies, and programs. Furthermore, youth participation goes beyond addressing topics that are solely of interest to adults; it also involves creating platforms for young people to express their priorities and concerns. A

crucial aspect of fostering participation is ensuring that young individuals are well-informed about the issues and the processes they are involved in.

It is important to ensure the inclusion of young individuals from diverse backgrounds and experiences in road safety initiatives. This involves creating opportunities for young people from various demographics, including marginalised communities, to participate and express their perspectives actively. Also, it is important to highlight the importance of empowering youth leadership and ownership to assume leadership roles and actively contribute to the planning, implementation, and evaluation of road safety programs. [71]

9.3 Medical Curriculum and Health Sector

Recent research conducted in Mansoura, Egypt, focusing on the Perception and Practice of Road Safety among Medical Students, highlighted some concerning findings. The study revealed that a significant proportion of students, over 40%, had encountered an injury within the previous year, with the majority of incidents occurring while they were pedestrians (56%). Surprisingly, 15.2% of the students reported driving, despite only 9.6% possessing a valid driving licence. These statistics underscore the pressing necessity to integrate road safety education into the medical curriculum. So, preparing future healthcare professionals for road safety topics is the responsibility of every medical school in the world as it will dramatically contribute to reducing the burden of road traffic injuries, promoting patient safety, and creating a culture of prevention and care. [72]

Road safety can be incorporated in the medical curriculum by several strategies in different phases of medical school. In the preclinical and clinical phases of medical education, students could be introduced to the basics of road safety, such as risk factors, injury prevention, emergency management, and rehabilitation, in the form of comprehensive courses. Also, it can be incorporated into the already existing curriculum. For example, we can highlight road traffic injuries' musculoskeletal and neurological consequences. In clinical rotations, students can be exposed to real-life scenarios involving persons experiencing accidents, providing opportunities to apply their knowledge and skills in a practical setting.

Interprofessional education and work should be highly encouraged between healthcare disciplines, such as Medicine, nursing, physical therapy, and occupational therapy, in the form of conjoint workshops and seminars to enhance teamwork and communication skills in managing road traffic injuries collectively [73]

According to the Abu Dhabi Declaration: Ten years on. Geneva: WHO; 2019. As representatives of different healthcare systems worldwide, we must work together on promoting multisectoral action and UHC, engaging relevant stakeholders and empowering local communities to strengthen Primary Health care, considering it the first line in reducing the consequences of road traffic injuries. Additionally, concerted efforts are needed to address the economic, social, and environmental determinants of health that impact road safety. This can be achieved by adopting a Health in All Policies approach and reducing risk factors. To achieve the vision of zero road traffic injuries, it is crucial to involve a wide range of stakeholders to reach Health for All, ensuring that no one is left behind. It is equally important to address and manage conflicts of interest, promote transparency, and implement participatory governance strategies [74]

10. Road Safety and Health in Post-Pandemic Recovery

In 2020, road deaths dropped by 20.2% on average across 19 countries compared to 2017-19 due to Reduced traffic volume in many areas due to lockdowns and restrictions, according to the International Road Traffic and Accident Database. The biggest reductions were seen in older people (75+ years) and young people (0-17 years), with both groups experiencing a 24% decrease, likely due to pandemic travel restrictions, as some regions reported fewer road accidents due to fewer vehicles on the road. Among 20 countries, road deaths by

transport mode fell by 21.3% in 2020. Public transport deaths decreased by 68%, with only 47 deaths in 2020, down from an average of 148 in 2017-19. In some countries, there was a slight increase in road accidents due to increased concerns about speeding and reckless driving on clearer roads. [75]

After the Covid-19 pandemic's impact in 2020 and 2021, which saw reduced mobility and fewer road deaths, 2022 returned to normal. There weren't any notable mobility restrictions in IRTAD countries that year. For the 35 IRTAD countries with confirmed data, road deaths rose by 3.2% in 2022 compared to the average from 2017 to 2019 due to a potential increase in road accidents as traffic volume returns to normal or higher levels.

Where the World Stands on Road Safety:

- **Global Goals:** The WHO's Global Plan for the Decade of Action for Road Safety 2021-2030 outlines targets to halve road traffic deaths and injuries by 2030.
- **Challenges Remain:** Many countries were off-track to meet previous road safety targets even before the pandemic. The pandemic exacerbated some challenges while highlighting areas for innovation.

In the post-pandemic era, several lessons regarding road safety have come to the forefront. One of the primary takeaways is the importance of adaptability. Swiftly modifying road safety measures in response to changing conditions is beneficial and vital for ensuring continued safety. Additionally, a holistic approach to road safety has been emphasised. Focusing solely on infrastructure or vehicle standards is insufficient. Factors like public awareness, education, and integrated strategies considering multiple dimensions are essential. Lastly, the pandemic has underscored the significance of collaboration. Road safety systems must remain resilient during emergencies like pandemics and maintain basic services. Clear communication ensures the public understands any safety changes, while ongoing data collection offers insights to adapt strategies promptly. A comprehensive road safety approach necessitates cross-sectoral cooperation, bringing together stakeholders from health, transport, urban planning, and other relevant fields to create cohesive and effective strategies. [76]

References

1. Global status report on road safety 2023 n.d. <https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/global-status-report-on-road-safety-2023> (accessed December 22, 2023).
2. Perel P, Ker K, Ivers R, Blackhall K. Road safety in low- and middle-income countries: a neglected research area. *Injury Prevention*. 2007 Aug 1;13(4):227–7.
3. Gupta M, Bandyopadhyay S. Regulatory and Road Engineering Interventions for Preventing Road Traffic Injuries and Fatalities Among Vulnerable Road Users in Low- and Middle-Income Countries: A Systematic Review. *Frontiers in Sustainable Cities*. 2020 May 19;2.
4. Safarpour H, Khorasani-Zavareh D, Mohammadi R. The common road safety approaches: A scoping review and thematic analysis. *Chinese Journal of Traumatology*. 2020 Apr;23(2):113–21.
5. Global status report on road safety 2023 n.d. <https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/global-status-report-on-road-safety-2023> (accessed December 22, 2023).
6. <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>
7. Chen S, Kuhn M, Prettner K, Bloom DE. The global macroeconomic burden of road injuries: estimates and projections for 166 countries. *Lancet Planet Health* 2019;3:e390–8. [https://doi.org/10.1016/S2542-5196\(19\)30170-6](https://doi.org/10.1016/S2542-5196(19)30170-6).
8. Manisalidis I, Stavropoulou E, Stavropoulos A, Bezirtzoglou E. Environmental and health impacts of air pollution: A review. *Front Public Health* 2020;8:14. <https://doi.org/10.3389/fpubh.2020.00014>.

9. Chen X, Liu M, Zuo L, Wu X, Chen M, Li X, et al. Environmental noise exposure and health outcomes: an umbrella review of systematic reviews and meta-analysis. *Eur J Public Health* 2023;33:725–31. <https://doi.org/10.1093/eurpub/ckad044>.
10. Grace MS, Dunstan DW. Sedentary behaviour and mortality. In: Leitzmann MF, Jochem C, Schmid D, editors. *Sedentary Behaviour Epidemiology*, Cham: Springer International Publishing; 2018, p. 339–78. https://doi.org/10.1007/978-3-319-61552-3_14.
11. Grace MS, Dunstan DW. Sedentary behaviour and mortality. In: Leitzmann MF, Jochem C, Schmid D, editors. *Sedentary Behaviour Epidemiology*, Cham: Springer International Publishing; 2018, p. 339–78. https://doi.org/10.1007/978-3-319-61552-3_14.
12. Causes and Effects of Climate Change | United Nations n.d. <https://www.un.org/en/climatechange/science/causes-effects-climate-change> (accessed December 22, 2023).
13. Climate change n.d. <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health> (accessed December 22, 2023).
14. World Health Organization. Transport, Health and Environment. [Internet]. World Health Organization; [cited 2024 Jan 1]. Available from: <https://www.who.int/europe/news-room/fact-sheets/item/transport-health-and-environment>.
15. Shivanna KR. Climate change and its impact on biodiversity and human welfare. *Proc Indian Natl Sci Acad.* 2022;88(2):160–71. doi: 10.1007/s43538-022-00073-6. Epub 2022 May 2. PMID: PMC9058818
16. Rodrigues AS, Ewers RM, Parry L, Souza C Jr, Veríssimo A, Balmford A. Boom-and-bust development patterns across the Amazon deforestation frontier. *Science.* 2009 Jun 12;324(5933):1435-7. doi: 10.1126/science.1174002. PMID: 19520958.
17. Stansfeld SA, Berglund B, Clark C, Lopez-Barrio I, Fischer P, Ohrström E, Haines MM, Head J, Hygge S, van Kamp I, Berry BF; RANCH study team. Aircraft and road traffic noise and children's cognition and health: a cross-national study. *Lancet.* 2005 Jun 4-10;365(9475):1942-9. doi: 10.1016/S0140-6736(05)66660-3. PMID: 15936421.
18. WHO, Brown L. Burden of Disease from Environmental Noise. Quantification of Healthy Life Years Lost in Europe. [Journal Article]. 2011 Jan 1
19. Author(s): Wilunda C, Putoto G, Manenti F, Castelnuovo AD, Takahashi R, Montalbetti F, et al. The impact of the COVID-19 pandemic on reproductive, maternal, and child health services in a low-income setting: A case study of Jimma, Ethiopia. *Frontiers in Public Health.* 2020;8:14. Available from: <https://www.frontiersin.org/articles/10.3389/fpubh.2020.00014/full>
20. Ministry of Environment, Forest and Climate Change, Government of India. (2019). National Clean Air Programme (NCAP): Status Report [PDF]. Retrieved from https://moef.gov.in/wp-content/uploads/2019/05/NCAP_Report.pdf
21. World Health Organization. (2020). Weekly epidemiological update - 29 December 2020. Geneva: World Health Organization. Available from: <https://www.who.int/publications/i/item/9789241565684>
22. United Nations. 2030 Agenda for Sustainable Development [Internet]. New York: United Nations; c2022 [cited 2024 Jan 1]. Available from: <https://sdgs.un.org/2030agenda>
23. Perel P, Ker K, Ivers R, Blackhall K. Road safety in low- and middle-income countries: A neglected research area [Internet]. U.S. National Library of Medicine; 2007 [cited 2024 Jan 3]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2598339/>
24. sanchez guadlaupe. Risalud Repository :: Home [Internet]. The Institutional Repository of the Andalusian Public Health System; 2021 [cited 2024 Jan 2]. Available from: <https://repositoriosalud.es/>
25. Policy Brief: SDG 5 [Internet]. Global Youth Coalition for Road Safety. [cited 2024 Feb 18]. Available from: <https://claimingourspace.org/sdg5>
26. Policy Brief: SDG 10 [Internet]. Global Youth Coalition for Road Safety. [cited 2024 Feb 18]. Available from: <https://claimingourspace.org/policy-brief-sdg-10>

27. Shahbazi F, Hashemi Nazari SS, Soori H, Khodakarim S. Socioeconomic inequality in mortality from road traffic accident in Iran [Internet]. U.S. National Library of Medicine; 2019 [cited 2024 Jan 3]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6941628/>
28. Van den Berghe W. France: Vias Institute – Knowledge Centre Road Safety; 2017.
29. Mobility and Transport [Internet]. [cited 2023 Dec 22]. ITS & Vulnerable Road Users. Available from: https://transport.ec.europa.eu/transport-themes/intelligent-transport-systems/road/action-plan-and-directive/its-vulnerable-road-users_en
30. Schwartz N., Buliung R., Daniel A., Rothman L. Disability and pedestrian road traffic injury: A scoping review. Health & Place. Volume 77. 2022. <https://doi.org/10.1016/j.healthplace.2022.102896>
31. Crundall D., Van Loon E. Improving attitudes towards vulnerable road users. Accident Analysis & Prevention. Volume 184. 2023. <https://doi.org/10.1016/j.aap.2023.107006>
32. Protecting vulnerable road users [Internet]. [cited 2023 Dec 22]. Available from: <https://www.who.int/china/activities/protecting-vulnerable-road-users>
33. SAFER [Internet]. [cited 2023 Dec 23]. Available from: <https://www.who.int/initiatives/SAFER/drink-driving>
34. Road traffic injuries [Internet]. [cited 2023 Dec 23]. Available from: https://www.who.int/health-topics/road-safety#tab=tab_2
35. Drug use and road safety [Internet]. [cited 2023 Dec 23]. Available from: <https://www.roadsafetynetwork.in/wp-content/uploads/2019/01/drug-use.pdf>
36. Road traffic injuries [Internet]. [cited 2023 Dec 23]. Available from: <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>
37. Teaching road safety to preschoolers [Internet]. [cited 2023 Dec 23]. Available from: <https://www.unicef.org/armenia/en/stories/teaching-road-safety-preschoolers>
38. Lyon C., Mayhew D., Granié M., Robertson R., Vanlaar W., Woods-Fry H., Thevenet Ch., Furian G., Soteropoulos A., Age and road safety performance: Focusing on elderly and young drivers. IATSS Research. Volume 44. Issue 3. 2020. Pages 212-219. <https://doi.org/10.1016/j.iatssr.2020.08.005>
39. Mobility & Transport - Road Safety [Internet]. [cited 2023 Dec 23]. Older Drivers. Available from: https://road-safety.transport.ec.europa.eu/eu-road-safety-policy/priorities/safe-road-use/elderly-drivers/older-drivers_en
40. Road traffic injuries [Internet]. [cited 2023 Dec 23]. Available from: <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>
41. Al-Ajlouny S. A., Alzboon K. K., Effects of mobile phone using on driving behavior and risk of traffic accidents. Journal of Radiation Research and Applied Sciences. Volume 16. Issue 4. 2023. <https://doi.org/10.1016/j.jrras.2023.100662>
42. Save lives: a road safety technical package [Internet]. World Health Organization; 2017 [cited 2023 Dec 23]. Available from: <https://www.who.int/publications/i/item/save-lives-a-road-safety-technical-package>
43. Road traffic injuries [Internet]. [cited 2023 Dec 23]. Available from: <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>
44. Joewono T. B., Kubota H. SAFETY AND SECURITY IMPROVEMENT IN PUBLIC TRANSPORTATION BASED ON PUBLIC PERCEPTION IN DEVELOPING COUNTRIES. IATSS Research. Volume 30. Issue 1. 2006. Pages 86-100. [https://doi.org/10.1016/S0386-1112\(14\)60159-X](https://doi.org/10.1016/S0386-1112(14)60159-X)
45. Global Alliance of Cities for Road Safety - A one-stop-shop for cities [Internet]. [cited 2023 Dec 23]. Available from: <https://roadsafetyfund.un.org/projects/global-alliance-cities-road-safety-one-stop-shop-cities>
46. Transport systems need to be made safe, healthy and sustainable [Internet]. [cited 2023 Dec 23]. Available from: <https://www.who.int/news/item/15-05-2023-transport-systems-need-to-be-made-safe--healthy-and-sustainable>

47. Research staff G\ Global burden of disease (GBD) [Internet]. 2017 [cited 2024 Jan 3]. Available from: <http://www.healthdata.org/gbd>
48. World Health Organization. (2018). Global status report on road safety 2018. Retrieved from <https://www.who.int/publications/i/item/9789241565684>
49. Institute I information. Background on: Compulsory auto/uninsured motorists [Internet]. 2021 [cited 2024 Jan 3]. Available from: <https://www.iii.org/article/background-on-compulsory-auto-uninsured-motorists>
50. Gupta M, Bandyopadhyay S. Regulatory and Road Engineering Interventions for Preventing Road Traffic Injuries and Fatalities Among Vulnerable Road Users in Low- and Middle-Income Countries: A Systematic Review. *Front Sustain Cities* 2020;2. <https://doi.org/10.3389/frsc.2020.00010>.
51. Safarpour H, Khorasani-Zavareh D, Mohammadi R. The common road safety approaches: A scoping review and thematic analysis. *Chin J Traumatol* 2020;23:113–21. <https://doi.org/10.1016/j.cjtee.2020.02.005>.
52. Weijermars W, Wegman F. Ten years of sustainable safety in the netherlands. *Transportation Research Record* 2011;2213:1–8. <https://doi.org/10.3141/2213-01>.
53. Netherlands: road traffic fatalities 2006-2020 | Statista n.d. <https://www.statista.com/statistics/437942/number-of-road-deaths-in-netherlands/> (accessed December 26, 2023).
54. https://ec.europa.eu/commission/presscorner/api/files/document/print/en/memo_19_1990/MEMO_19_19_90_EN.pdf. (accessed December 26, 2023)
55. Turner, B., Job, S. and Mitra, S. (2021). *Guide for Road Safety Interventions: Evidence of What Works and What Does Not Work*. Washington, DC., USA: World Bank.
56. Decade of Action for Road Safety 2021-2030 n.d. <https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/decade-of-action-for-road-safety-2021-2030>
57. Hughes BP, Anund A, Falkmer T. System theory and safety models in Swedish, UK, Dutch and Australian road safety strategies. *Accid Anal Prev* 2015;74:271–8. <https://doi.org/10.1016/j.aap.2014.07.017>.
58. Kim E, Muennig P, Rosen Z. Vision zero: a toolkit for road safety in the modern era. *Inj Epidemiol* 2017;4:1. <https://doi.org/10.1186/s40621-016-0098-z>.
59. Johansson R. Vision Zero – Implementing a policy for traffic safety. *Saf Sci* 2009;47:826–31. <https://doi.org/10.1016/j.ssci.2008.10.023>.
60. Despite notable progress, road safety remains urgent global issue n.d. <https://www.who.int/news/item/13-12-2023-despite-notable-progress-road-safety-remains-urgent-global-issue>.
61. Global status report on road safety 2023 n.d. <https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/global-status-report-on-road-safety-2023>.
62. Best Practice for Urban Road Safety | ITF n.d. <https://www.itf-oecd.org/best-practice-urban-road-safety> (accessed December 26, 2023).
63. Cities Safer By Design n.d. <https://publications.wri.org/citiessafer/> (accessed December 26, 2023).
64. Policymakers Toolkit [Internet]. Global Youth Coalition for Road Safety. Available from: <https://claimingourspace.org/policymakers-toolkit-2022>
65. Second Decade of Action for Road Safety [Internet]. www.who.int. Available from: <https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/decade-of-action-for-road-safety-2021-2030>

66. About us [Internet]. www.who.int. Available from: <https://www.who.int/groups/united-nations-road-safety-collaboration/about>
67. Road Safety Strategy For the United Nations System and its Personnel A Partnership for Safer Journeys UNITED NATIONS [Internet]. Available from: https://www.un.org/sites/un2.un.org/files/2020/09/road_safety_strategy_booklet.pdf
68. Projects | UNECE [Internet]. unece.org. [cited 2024 Jan 1]. Available from: <https://unece.org/projects-2>
69. <https://parachute.ca/wp-content/uploads/2023/03/Framework-Summary-Print-FYDBYD-UA.pdf>
70. Road Safety NGO, T. (2021) How youth can be helpful in road safety, TRAX Road Safety NGO. Available at: <https://trafficzam.com/how-youth-can-be-helpful-in-road-safety/>
71. Ministerie van Buitenlandse Zaken Y. Meaningful Youth Participation Toolkit [Internet]. Ministerie van Buitenlandse Zaken; 2022 [cited 2024 Jan 3]. Available from: <https://www.youthatheart.nl/meaningful-youth-participation-toolkit>
72. Helal R, El-Khawaga G, El-Gilany A-H. Perception and practice of road safety among medical students, Mansoura, Egypt [Internet]. U.S. National Library of Medicine; 2018 [cited 2024 Jan 3]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5831683/>
73. Children's Fund (UNICEF), W.H.O. and the U.N. (2018) *Declaration of astana - world health organization (WHO)*. Available at: <https://www.who.int/docs/default-source/primary-health/declaration/gcphc-declaration.pdf>
74. Of nursing AA. Core competencies for inter professional collaborative practice . America: American association of colleges of Nursing ; 2011. Available at: <https://ipec.memberclicks.net/assets/2011-Original.pdf>
75. International Transport Forum: Road Safety Annual Report 2023. Report by Secretary-General of the International Transport Forum. Available from: irtad-road-safety-annual-report-2023_final.pdf (itf-oecd.org)
76. Global status report on road safety 2023 n.d. <https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/global-status-report-on-road-safety-2023> (accessed December 22, 2023).