Understanding deaths from violence and injury

in the WHO Eastern Mediterranean Region

Using WHO's 2021 global health estimates for a targeted response

World Health Organization
Eastern Mediterranean Region

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Preface

Violence and injury, and the deaths and illness they cause, devastate the lives of individuals, families and communities. The immediate and long-term health and economic consequences and costs of violence and injury are varied and lasting. They undermine countries' investments in development and population well-being and erode the productive capacity of future generations.

This report aims to generate discussion to help policy-makers realize the scale of violence and injury as a public health issue in the Eastern Mediterranean Region and the impact it has on hundreds of thousands of lives each year. Drawing on data from the latest World Health Organization (WHO) estimates, the report gives the most accurate picture yet of the situation of violence and injury in the Eastern Mediterranean countries, while taking account of the Region's data limitations.

The role of policy-makers and practitioners in preventing violence and injury is crucial to reducing the human, social and emotional toll they exact, and it is hoped that this report will focus a more targeted response. Acting to reduce death and illness from violence and injury will not only help meet global commitments and targets on these specific causes of death, but will also help achieve the targets of the Sustainable Development Goals that specifically focus on injuries, and those that focus on health and well-being more generally.

The United Nations' Sustainable Development Goals act as a blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. There are 17 Goals, all of which are interconnected. The aim is that all 17 goals are achieved by 2030.

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Key messages

- Violence and injury[1] are a growing public health problem in the Eastern Mediterranean Region.
- Deaths as a result of violence and injury total over 433 646 per year in the Region, representing 8.8% of all such deaths globally and, contrary to global trends, the rates of such deaths in the Region are on the rise.
- The Eastern Mediterranean Region has the second highest rate of deaths from injury (relative to deaths from all causes) of all WHO regions except the African Region.
- Almost a third of deaths from injury are due to road traffic crashes and another third are due to intentional injuries (18.6% collective violence; 6.4% self-harm; 9.7% interpersonal violence).
- The Region's high-income countries have a higher overall incidence of deaths from intentional and unintentional injury than the Region's low- and middle-income countries.
- Younger productive groups aged 5–49 have the highest overall burden of deaths from injury and males account for two thirds of all deaths from injury.
- Deaths from injuries are only the tip of the iceberg. Each cause of death will also lead to a number of hospital admissions, emergency department or general practitioner treatments or treatment delivered outside formal medical care that will be larger than the number of deaths. Many intentional and unintentional injuries can be prevented through a broad range of proven, science-based, effective and cost-effective strategies and interventions.
- Within overall multisectoral efforts, the health sector has a central role in injury prevention, not only in terms of providing post-injury care and support but also in applying unique public health models to address the problem. all deaths from injury.

[1] For the purpose of this report, the term injury refers to both unintentional injuries and intentional injuries resulting from violence.

1. Introduction

Every year more than 4.4 million people worldwide lose their lives to intentional or unintentional injury, and 9% of these deaths occur in the Eastern Mediterranean Region. The latest WHO global health estimates (GHE) data show that the Region has the highest proportion of mortality from injury (relative to deaths from all causes) of all WHO regions together with the African Region.

Sustainable Development Goal targets

1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents

3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation

5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

16.1 Significantly reduce all forms of violence and related death rates everywhere

16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children

This report analyses GHE data on injury and violence deaths in the Eastern Mediterranean Region. Drawing on statistics for 21 of the Region's 22 countries and territories[2], it reveals that deaths from violence and injury rose between 2000 and 2021, a trend that runs counter to the slight decline occurring globally over the same period.

What are the risk factors for violence and injury?

Violence and injuries are varied and can be intentional or unintentional (see Box 1 for definitions), and the risk factors for each of their types vary accordingly.

Unintentional death and injury

Drowning

Risk factors for drowning include a lack of physical barriers between people and water, in particular close to dwellings; a lack of (or inadequate) supervision of young children; uncovered or unprotected water supplies and lack of safe water crossings; a lack of water safety awareness and risky behaviour around water, such as swimming alone; and the use of water-based methods of transport, especially of overcrowded or poorly maintained vessels

Box 1. Defining intentional and unintentional injury

- Unintentional injuries are defined as harmful acts that occur without any intention to harm the individual affected. They are categorized as external cause injuries. Unintentional injuries are mainly caused by road traffic accidents, poisoning, drowning, falls and burns *(3)*.
- Intentional injuries are caused by violence, defined as the intentional use of physical force or power (threatened or actual) against oneself, another person or a group or community, that results in injury, death, psychological harm, maldevelopment or deprivation. Intentional injuries or violence can be self-directed (as in suicide or self-harm), collective (as in, for example, war or gang activity) or interpersonal (involving, for example, a child, partner, older person, acquaintance or stranger) *(4, 5)*. (Please see Annex 1 for further definitions.)

Falls

Risk factors for falls include working at elevated heights or in other hazardous working conditions; alcohol or substance use; poverty; overcrowded housing; sole parenthood; young maternal age; neurological, cardiac or other disabling conditions; side-effects of medication; physical inactivity and loss of balance, particularly among older people; poor mobility, cognition, and vision; and unsafe environments, particularly for those with poor balance and limited vision *(2)*.

[2] Not including the West Bank and Gaza Strip.

Fire, heat and hot substances

Risk factors for death and injury from fire, heat and hot substances include living in low- and middle-income countries; occupations that increase exposure to fire; poverty, overcrowding and lack of proper safety measures; placement of young girls in household roles such as cooking and care of small children; underlying medical conditions including epilepsy, peripheral neuropathy and physical and cognitive disabilities; alcohol abuse and smoking; easy access to chemicals used for assault; use of kerosene (paraffin) as a fuel source for non-electric domestic appliances; and inadequate safety measures for liquefied petroleum gas and electricity *(6)*.

Poisoning

Risk factors for unintentional poisoning include exposures to toxic chemicals such as heavy metals, pesticides, solvents, paints, detergents, kerosene, carbon monoxide, methanol and drugs, at home and in the workplace. Easy access to highly toxic pesticides is also a risk factor for intentional poisoning including self-harm or suicide *(7)*.

Road traffic injuries

Risk factors for road traffic injuries include speeding; drink–driving; drug–driving; non-use of seat belts; non-use of child restraints; non-use of motorcycle helmets; distracted driving; unsafe vehicles; unsafe road infrastructure; and inadequate post-crash response *(8)*.

Intentional death and injury

Collective violence and legal intervention, self-harm and interpersonal violence

Risk factors for this group of causes of death and injury include behavioural disorders; early involvement with alcohol, drugs and tobacco; low commitment to school and educational achievement; involvement in crime; unemployment; exposure to violence in the family; poor parental supervision of children; low family income; unemployment in the family; associating with delinque nt peers and/or gang membership; access to and misuse of firearms; gangs and a local supply of illicit drugs; and the quality of a country's governance *(9)*.

2. Overview of deaths from violence and injury in the Eastern Mediterranean Region

Deaths from all causes of injuries rose between 2000 and 2021 (except for those resulting from poisoning, drowning and exposure to fire, heat and hot substances), with a much greater rise in deaths from intentional injury (an 117.3% rise) than in deaths from unintentional injury (a 28.5% rise). In unintentional injuries, the highest increase is in deaths due to falls (which have risen by 50.3%), closely followed by those due to road traffic injuries (which have risen by 38.4% as shown in Table 1).

Table 1. Percentage change in estimated deaths from injury 2000–2021, by external cause of injury, in the Eastern Mediterranean Region

External cause of injury	2000	2021	% change 2000–2021
Overall injuries	289 646	433 646	49.7
Unintentional injuries	220 430	283 247	28.5
1. Road injury	92 073	127 430	38.4
2. Poisonings	4080	4482	9.9
3. Falls	20 833	31 314	50.3
4. Fire, heat and hot substances	17 523	16 959	3.2
5. Drowning	27 782	34 741	25.0
6. Exposure to mechanical forces	13 686	15 475	13.1
7. Natural disasters	31	1006	1532.3
8. Other unintentional injuries	44 422	51 839	16.7
Intentional injuries	69 216	150 399	117.3
1. Self-harm	23 268	27 691	19.0
2. Interpersonal violence	29 920	42 063	40.6
3. Collective violence and legal intervention[3]	16 028	80 645	403.2

[3] Deaths due to so-called legal interventions are those that occur during any violent interaction between the State and individual persons or groups of persons.

Deaths due to collective violence and legal interventions have risen by an alarming 403%, leaving the Region with a rate nine times the global percentage for this cause of death. The rates of road traffic injuries and other injury causes such as mechanical factors and burns are also above the global average.

"Deaths due to collective violence and legal interventions between 2000 and 2021 have seen an alarming 403% increase."

GHE data show that WHO's Eastern Mediterranean Region has the highest rates of all in terms of deaths due to exposure to mechanical forces, and that 12% of deaths from injury were due to a category of unintentional injuries termed other – a category that itself demands further investigation and more robust data collection.

Benefits of using GHE data

This report is based on the latest WHO GHE *(3)*. Critically, GHE can help governments gauge the magnitude of deaths from violence and injury because they take account of regional shortcomings in the collection of injury fatality data, including underreporting; the use of different definitions by different sectors; incompleteness due to lack of several of the core data elements necessary for policy-making (e.g. the place where the injury occurred, the nature of the activity being undertaken when the injury happened, and the mechanism or cause); and challenges in collecting disaggregated data.[4] The GHE provide reliable estimates of causes of death globally, regionally and nationally and by

Box 2. Methodology

The GHE are produced using data from multiple sources, including national vital registration data, surveys and studies; latest estimates from WHO technical programmes; United Nations partners and inter-agency groups; and the Global Burden of Disease and other scientific studies. Before publishing, GHE are reviewed by WHO Member States through consultation with national focal points and WHO country and regional offices.

To describe the magnitude of injury in this report, a twofold analysis was conducted: a general analysis for all causes of injuries and a specific analysis for each cause of injury. In the general analysis, patterns of injury deaths and DALYs in the Region were analysed in relation to all causes of regional deaths. The trend of change between 2000 and 2021 was also examined to identify the change in the burden of injury deaths. In the specific analysis, the burden was similarly analysed for each specific cause of injury. In both cases, analysis was disaggregated by income, age and sex (for definitions see Annex 1).

[4] International statistical classification of diseases and related health problems 10th revision, 2nd edition. Geneva: World Health Organization; 2016 (https://icd.who.int/browse10/2016/en, accessed 27 July 2022).

age, sex and income group. They also provide key insights on mortality trends to support informed decision-making on health policy (see Box 2 for more on GHE methodology). As a result, the GHE 2021 can help policy and decision-makers in the Eastern Mediterranean Region better target their response to deaths from violence and injury.

Why action is urgently needed

Deaths from violence and injury are on the rise: Violence and injury are significant causes of death in the Eastern Mediterranean Region and, counter to the global trend, the rates for such deaths in the Region are on the rise.

Those at greatest risk include some of the youngest and most vulnerable people: More than half of road traffic deaths in the Region occur among those aged 5–49 years, meaning the highest burden of road traffic injuries is carried by children, adolescents and people in their most productive years. Children under the age of five account for a quarter of burns deaths and more than a third of deaths from poisoning and drowning. These are huge public health problems.

These deaths are preventable: Almost a third of deaths from injury are due to road traffic crashes and another third are the result of intentional injuries (18.6% collective violence; 6.4% self-harm; 9.7% interpersonal violence). Violence and injuries are predictable and preventable, and much evidence is available on what needs to be done to avert related deaths.

Purpose of this report

This report presents an analysis of data on injury and violence for the Eastern Mediterranean Region using the WHO GHE 2021. It aims to inform policy-makers of the significance and burden of deaths from intentional and unintentional injury in the Region, and to set out the magnitude of the problem of different types of injury death by age, sex, geography and country-income group. It suggests a set of actionable recommendations (based on GHE findings) to address challenges related to injury and violence in the Region and reverse the rising tide of deaths. It also aims to encourage policy-makers to look holistically at violence and injury prevention and at how different injury causes may benefit from shared solutions – for example, good street lighting may reduce the incidence of falls, road traffic crashes, violence against women and so on.

The report sets out regional-level variations in types of death from injury and violence for the purpose of mounting better targeted, cost-effective responses.

Target audience

This report is aimed at policy-makers and practitioners in public health; professionals working in health information and health promotion; and those working in specific policy areas such as road safety and prevention of interpersonal violence and self-harm.

Key statistics

Deaths from violence and injury and illness in the Eastern Mediterranean Region

Regional characteristics

- Deaths from injury rose from 8.6% to 8.8% as a percentage of overall deaths between 2000 and 2019, despite a small decrease in such deaths globally during the same period.
- Injury death rates in the Eastern Mediterranean Region are the second highest of all WHO regions (after the African Region).
- Three of the 20 leading causes of disability-adjusted life years (DALYs) result from injuries.
- Ninety percent (90%) of countries in the Region have at least one injury type within the top 10 leading causes of death.
- Deaths from collective violence and legal interventions have risen by 403% since 2000.

Types of injury

- Almost a third of deaths from injury are due to road traffic crashes and another third are due to intentional injuries (18.6% collective violence; 6.4% self-harm; 9.7% interpersonal violence).
- 18.6% of deaths from injury are due to collective violence and legal intervention – the highest of all WHO regions, and nine times the global percentage.

Socioeconomic variations

- Deaths from injury in the Region's high-income countries are nearly double those of the Region's low- and middle-income countries.
- High-income countries have nearly double the percentage of road traffic deaths of low- and middle-income countries.

Gender variations

- Overall, two thirds of deaths from injury occur among males.
- Females are more vulnerable to certain injury causes such as burns and poisoning.

Age influences

- The highest burden of road traffic injuries and violence is among children, adolescents and the younger productive groups aged 5–49.

- A quarter of burns deaths and more than a third of deaths from poisoning and drowning occur among children under the age of five.
- More than a third of deaths from falls occur among people aged 70 and over.
- More than 60% of female victims injured by collective violence and legal intervention are between 15 and 49 years of age.

The magnitude of the problem in the Eastern Mediterranean Region

Deaths from injury and violence are a growing public health problem. Forty-six people die every hour in the Eastern Mediterranean Region as result of violence or injury. Overall, such deaths in the Region are three and a half times higher than those attributable to HIV/AIDS, malaria and tuberculosis combined (see Table 2) *(3)*.

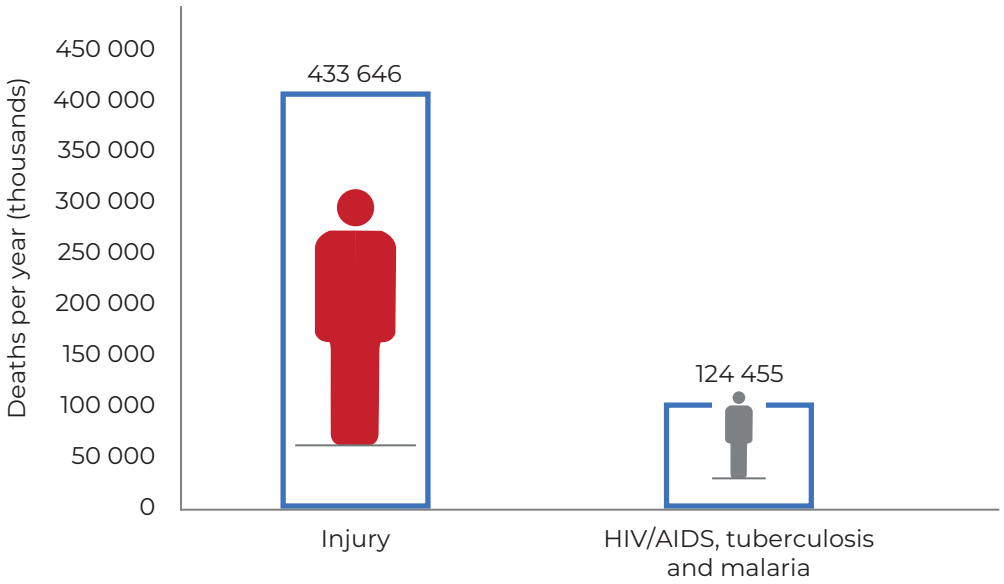

Fig. 1. Injury deaths compared with other leading causes of mortality in the Eastern Mediterranean Region, 2021

Deaths from injury are on the rise

Between 2000 and 2021, deaths from injury in the Eastern Mediterranean Region (as a percentage of all deaths) rose slightly from 8.6% to 8.8%; a small increase in 21 years. This rate is the highest of all WHO regions followed by the African Region. In almost all of the Region's countries (90%), violence and injury are among the top 10 causes of death.

Violence and injury have moved up the top 20 list of causes of DALYs in the last decades

In 2000, the only cause of DALYs in the top 20 related to violence and injury was road traffic injury, but by 2021 one more had risen to take a top 20 position: collective violence and legal intervention. Notably, the percentage of deaths due to road traffic injuries in 2021 (2.6%) is nearly the same as that in 2000 (2.7%) that was after an increase that occurred in 2019 (3.1%) (see Fig. 2).

Table 2. Causes of DALYs by number and rank, 2000 to 2021

Rank	2000		2021	
1	Ischaemic heart disease	12.8	Ischaemic heart disease	14.9
2	Stroke	7.6	COVID-19	12.6
3	Lower respiratory infections	7.2	Stroke	7.5
4	Preterm birth complications	6.4	Preterm birth complications	4.0
5	Diarrhoeal diseases	5.8	Lower respiratory infections	3.7
6	Birth asphyxia and birth trauma	5.2	Diabetes mellitus	2.8
7	Measles	3.6	Birth asphyxia and birth trauma	2.7
8	Tuberculosis	3.1	Kidney disease	2.7
9	Cirrhosis of the liver	3.0	Cirrhosis of the liver	2.6
10	Road injury	2.7	Road injury	2.6
11	Chronic obstructive pulmonary disease	2.5	Hypertensive heart disease	2.5
12	Congenital anomalies	2.2	Chronic obstructive pulmonary disease	2.4
13	Hypertensive hearth disease	2.1	Congenital anomalies	2.2
14	Other neonatal conditions	1.9	Diarrhoeal diseases	1.9
15	Kidney disease	1.8	Tuberculosis	1.8
16	Diabetes mellitus	1.7	Collective violence and legal intervention	1.6
17	Maternal conditions	1.5	Alzheimer disease and other dementias	1.1
18	Neonatal sepsis and infections	1.4	Breast cancer	1.1
19	Meningitis	1.4	Other neonatal conditions	1.0
20	Whooping cough	1.1	Trachea, bronchus, lung cancers	0.9

“Deaths from injury are on the rise in the Eastern Mediterranean Region, despite a small decline in such deaths globally. Road traffic crashes are the Region’s biggest single cause of death from violence and injury. Road traffic crashes cause a third of deaths from violence and injury.”

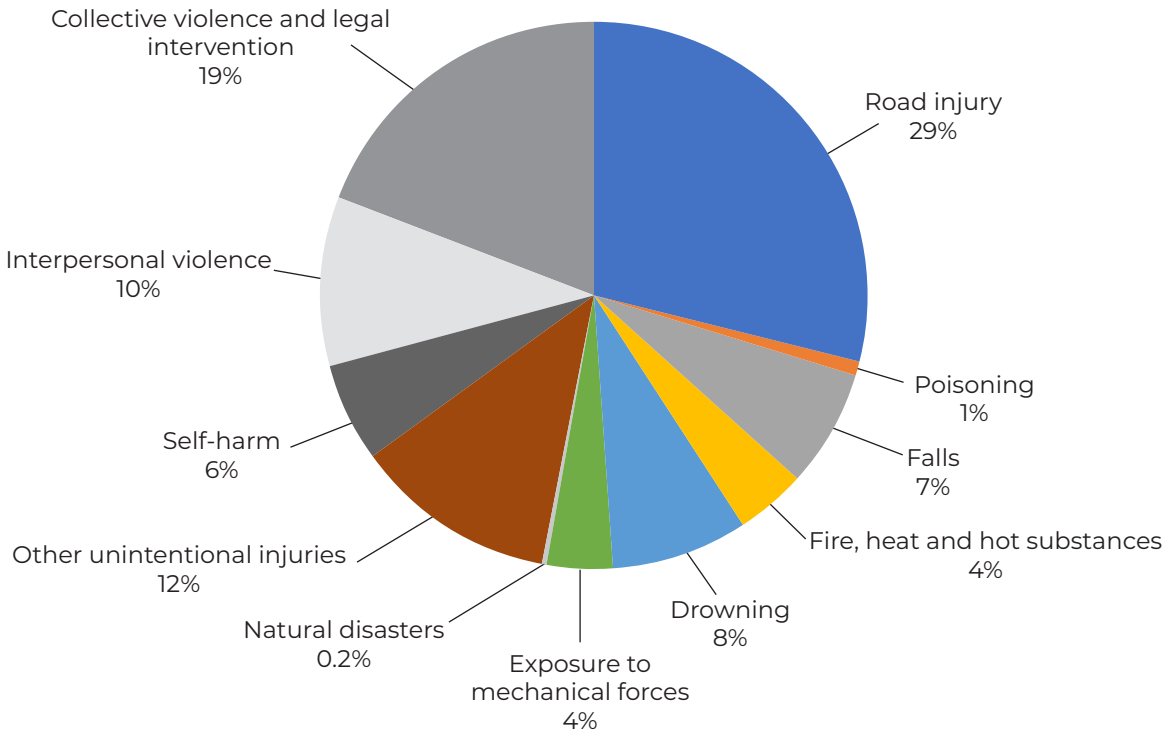

Fig. 2. Deaths from violence and injury, Eastern Mediterranean Region, 2021

A total of 433 646 deaths occurred as a result of violence and injury in the Eastern Mediterranean Region in 2021, almost a third of them (127 430) were the result of road traffic crashes, making road crashes the lead single cause death from violence and injury in the Region (see Fig. 2) and responsible for 3% of all deaths that year. In some countries, road traffic deaths are second only to those caused by heart disease and stroke.

Intentional injuries account for a further third of deaths from violence and injury

Intentional injuries accounted for 150 399 deaths over the same period – including 80 645 from collective violence (18%), 42 063 from interpersonal violence (9.7%) and 27 691 from self-harm (6.4%). GHE data also reveal that the Eastern Mediterranean Region has the highest rate of all WHO regions in relation to collective violence and legal intervention.

Deaths from collective violence and legal intervention are four times the global average

While deaths from injuries in the Region (compared with all deaths from injury) are lower than the global averages, this is not the case for four specific causes of injury:

- **Collective violence and legal interventions** cause 18.0% of all regional deaths from injury compared with 2.8% at the global level.
- **Fire, heat and hot substances** cause 3.9% of all regional deaths from injury compared with 2.8% at the global level.

- **Road traffic injuries** cause 29.4% of all regional deaths from injury compared with 26.4% at the global level.
- **Exposure to mechanical forces** causes 3.6% of all regional deaths from injury compared with 2.3% at the global level.

When deaths due to specific injuries (as a proportion of deaths due to all injuries) were compared across WHO regions, the Eastern Mediterranean Region had the highest percentage of cases of collective violence and exposure to mechanical forces; the second highest percentage for deaths due to fire, heat and hot substances; and the third highest percentage of deaths due to road traffic injuries (see Fig. 3).

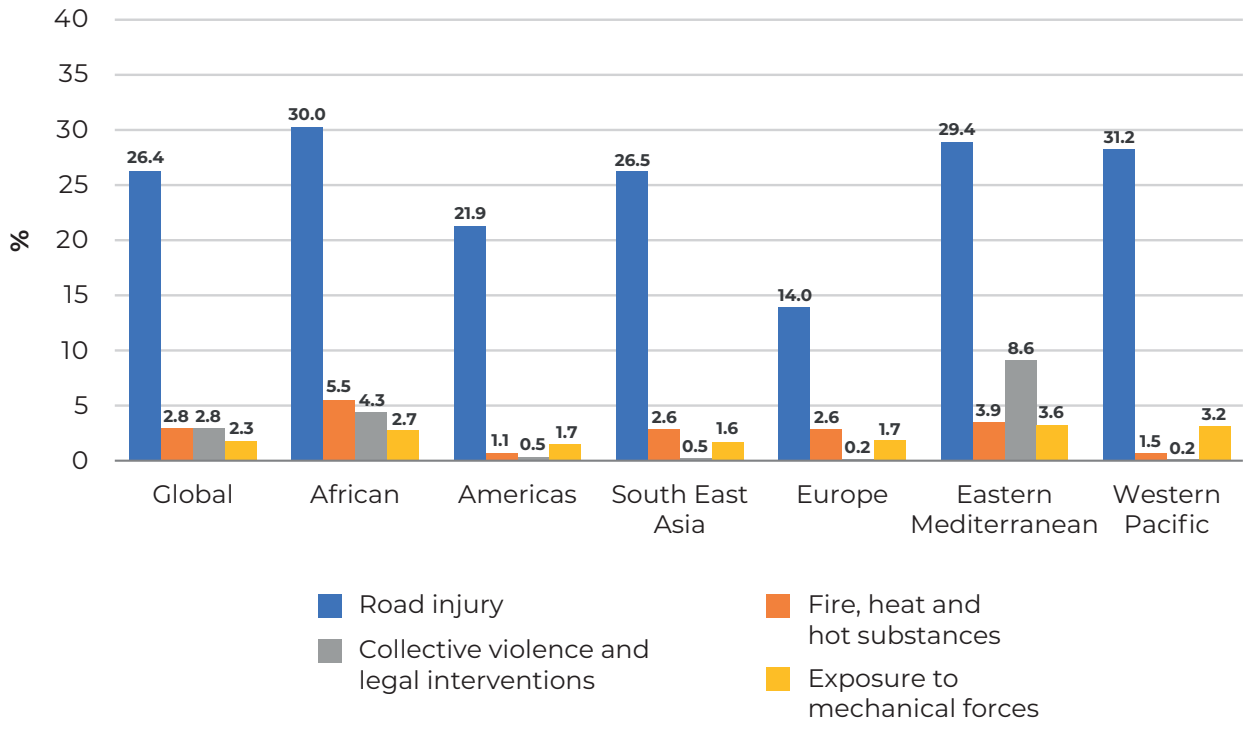

Fig. 3. Proportion of deaths from injury related to road injuries, fire, heat and hot substances, collective violence and legal interventions and exposure to mechanical forces from injury deaths, WHO regions, 2021

Impact varies according to country-income level, gender and age

Risk from violence and injury-related death across the Eastern Mediterranean Region is influenced by many factors, including country-income level, gender and age.

High-income countries have a higher percentage of deaths from injury than low- and middle-income countries

Although deaths due to intentional injuries are higher in the Region's low- and middle-income countries, overall, injuries and unintentional injuries are higher in the

Region's high-income countries (see Fig. 4). This is attributable to three specific causes: road traffic injuries, falls and exposure to mechanical forces (see Table 3).

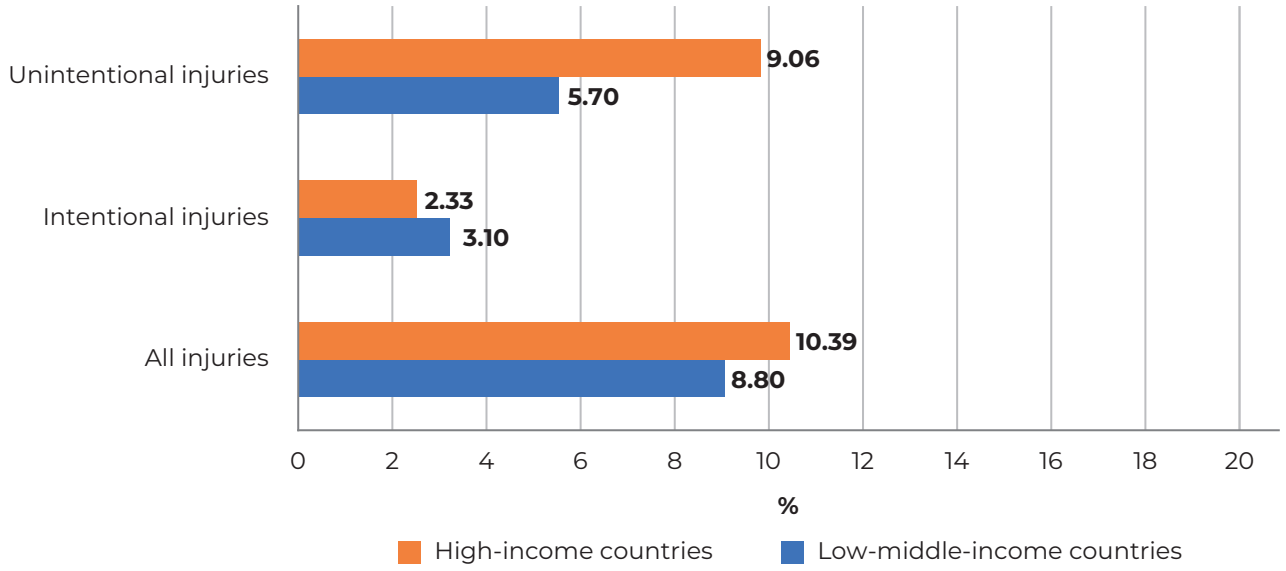

Fig. 4. Percentage of deaths from all injury deaths, by type and income, 2021

Table 3. Percentage of deaths from all injury deaths, by type and income, 2021

Type of injury	Low-middle income countries	High-income countries
Road injury	28.6	52.3
Poisoning	1.0	0.9
Falls	7.2	8.3
Fire, heat and hot substances	3.9	4.6
Drowning	8.1	4.7
Exposure to mechanical forces	3.5	6.0
Natural disasters	0.2	0.1
Other unintentional injuries	12.0	10.2
Self-harm	6.4	5.5
Interpersonal violence	9.8	6.4
Collective violence and legal intervention	19.2	0.8
Total	100.0	100.0

Males account for two thirds of deaths from injury

Of all deaths from injury, 72% occur among males (see Fig. 5). Males account for higher deaths due to specific causes of injuries to varying degrees. Moreover, males account for 75% of all road traffic deaths.

"Overall, injuries and unintentional injuries are higher in the Region's high-income countries."

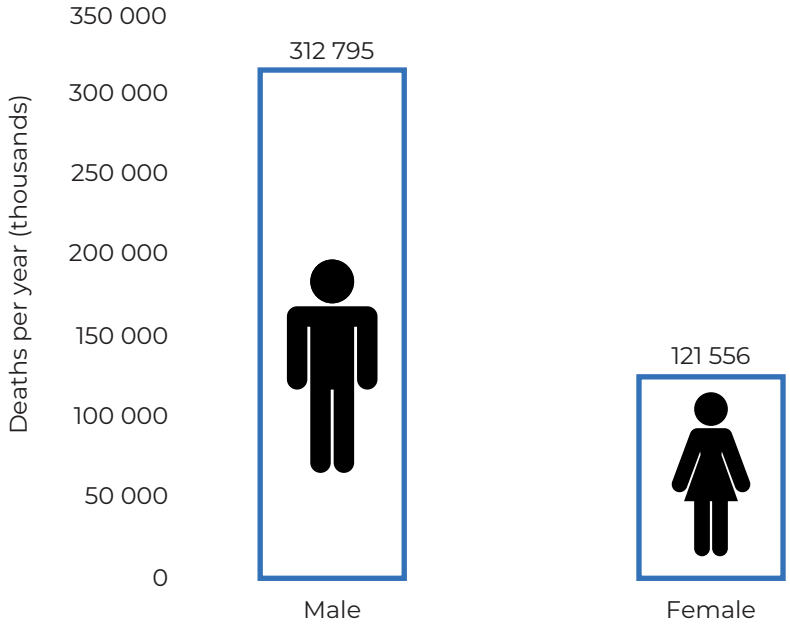

Fig. 5. Number of deaths from injury, by sex, 2021

Females are more vulnerable to injuries from poisoning and self harm, fire and heat

The ratio of female to male deaths rises when it comes to poisoning and self harm, reaching nearly 60% in the case of injury from fire, heat and hot substances and natural disasters (see Fig. 6).

Younger age groups have the highest overall burden of deaths from injury

An estimated 65.5% of all deaths from injury in 2021 occurred in people under the age of 30. Analysis of the top 10 causes of death by age group reveals that in the 15–29 age group, half of the 10 causes relate to injuries, and in the 5–14 age group, as do four of the leading causes of death. Children, adolescents and younger productive age groups bear the highest burden of road traffic injuries and violence – more than half of road traffic deaths occur among those aged 15–29 (24%) and 30–49 (31%) (see Table 4).

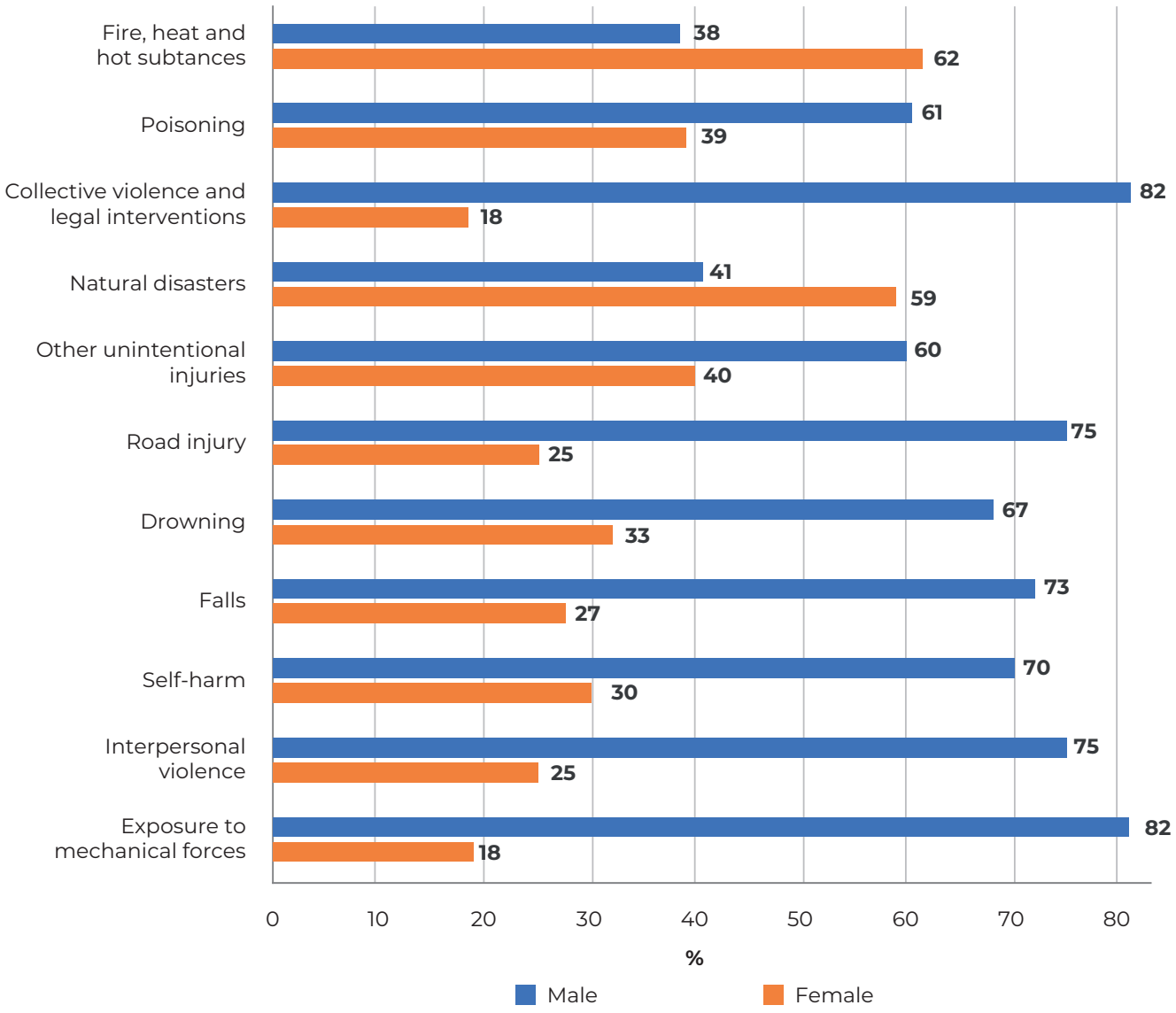

Fig. 6. Causes of deaths from injury, by sex, as a percentage, 2021

Table 4. Leading causes of deaths by age group, Eastern Mediterranean Region, GHE 2021

Rank	All ages	<5 years	5–14 years	15–29 years	30–49 years	50–59 years	60–69 years	70+ years
1	Ischaemic heart disease	Preterm birth complications	Road injury	Collective violence and legal intervention	COVID-19	Ischaemic heart disease	Ischaemic heart disease	Ischaemic heart disease
2	COVID-19	Birth asphyxia and birth trauma	Drowning	Road injury	Ischaemic heart disease	COVID-19	COVID-19	COVID-19
3	Stroke	Lower respiratory infections	Collective violence and legal intervention	Interpersonal violence	Road injury	Stroke	Stroke	Stroke
4	Preterm birth complications	Diarrhoeal diseases	Lower respiratory infections	COVID-19	Stroke	Cirrhosis of the liver	Diabetes mellitus	Hypertensive heart disease
5	Lower respiratory infections	Other neonatal conditions	Other unintentional injuries	Self-harm	Tuberculosis	Diabetes mellitus	Cirrhosis of the liver	Chronic obstructive pulmonary disease
6	Diabetes mellitus	Congenital heart anomalies	Diarrhoeal diseases	Ischaemic heart disease	Cirrhosis of the liver	Kidney diseases	Kidney diseases	Diabetes mellitus
7	Birth asphyxia and birth trauma	Childhood-cluster diseases	Congenital heart anomalies	Other unintentional injuries	Interpersonal violence	Road injury	Chronic obstructive pulmonary disease	Kidney diseases
8	Kidney diseases	Other congenital anomalies	Childhood-cluster diseases	Tuberculosis	Breast cancer	Tuberculosis	Hypertensive heart disease	Cirrhosis of the liver
9	Cirrhosis of the liver	Neonatal sepsis and infections	Meningitis	Cirrhosis of the liver	Kidney diseases	Breast cancer	Trachea, bronchus, lung cancers	Lower respiratory infections
10	Road injury	Drowning	Other infectious diseases	Stroke	HIV/AIDS	Liver cancer	Liver cancer	Other circulatory diseases

Children under the age of five are most affected by burns and poisoning

A quarter of burns deaths occur among children under the age of five, and when deaths are disaggregated by age and sex, the burden of burns deaths among females of all ages is mostly borne by children under the age of five and females aged 70 and over. More than a third of poisoning deaths occur among children under the age of five (Table 5).

Table 5. Deaths related to poisoning, fire, heat and hot substances and resulting from drowning as a percentage of all deaths from injury by age groups and sex, 2021

Age groups	Poisoning			Fire, heat and hot substances			Drowning		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
<5 years	20.0	21.0	31.0	24.4	25.0	23.0	44.8	39.0	58.0
5–14 years	10.5	10.0	11.0	9.6	11.0	9.0	23.4	25.0	20.0
15–29 years	20.7	20.0	21.0	23.2	18.0	26.0	14.8	18.0	9.0
30–49 years	23.7	29.0	16.0	20.1	22.0	19.0	9.0	11.0	5.0
50–59 years	8.0	9.0	7.0	7.1	8.0	6.0	3.0	3.0	2.0
60–69 years	6.1	6.0	6.0	6.6	8.0	7.0	2.4	2.0	3.0
70+ years	6.0	5.0	8.0	9.0	8.0	10.0	2.6	2.0	3.0

More than a third of deaths from drowning occur in children under the age of five

The highest percentage of deaths from drowning (44.8%) occur in children under the age of five. Females account for 42.0% of all deaths from drowning in this group, while males account for 58.0%. Younger children, adolescents and young adults (aged 5–29) of both sexes also bear a high burden of all deaths from drowning (38.2%).

Older people are disproportionately affected by falls

More than a third of deaths from falls occur in people aged 70 and over, with females in this age group accounting for double the burden of males (44.0% of such deaths being females aged 70 and over compared with 27.0% being males aged 70 and over) (see Fig. 7).

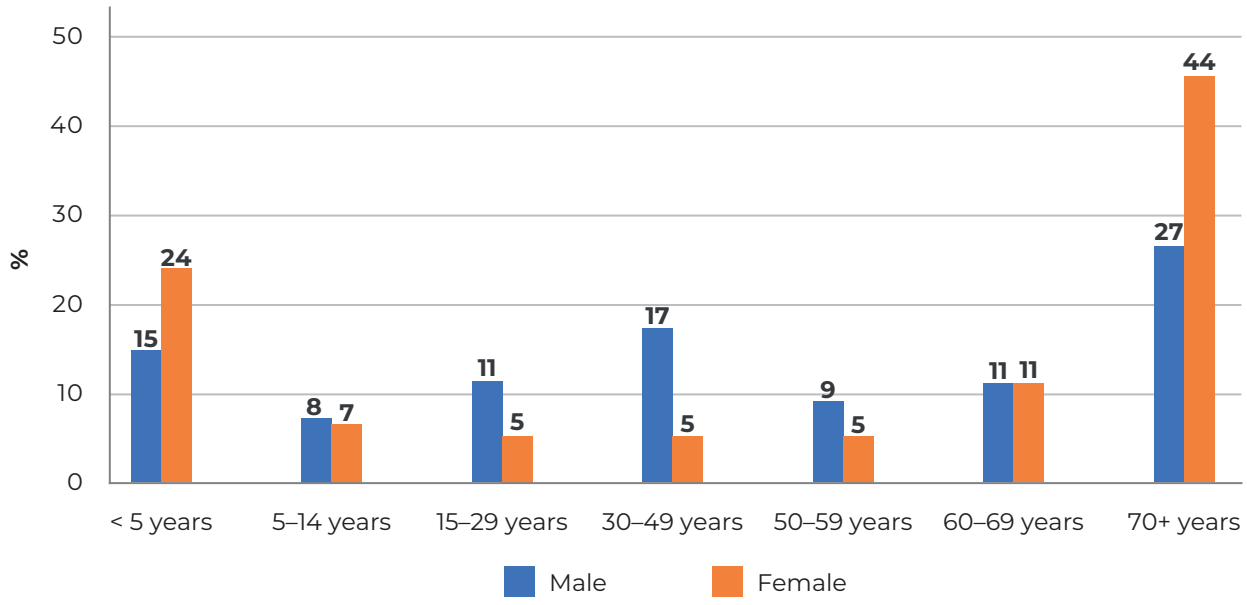

Fig. 7. Deaths from falls by age and sex as a percentage, 2021

Self-harm accounts for 6.4% of all deaths from injury and most affects males aged 15–49. In 2021, 71.0% of self-harm deaths occurred in males and 77.6% of such deaths occurred in those aged 15–49 (see Fig. 8).

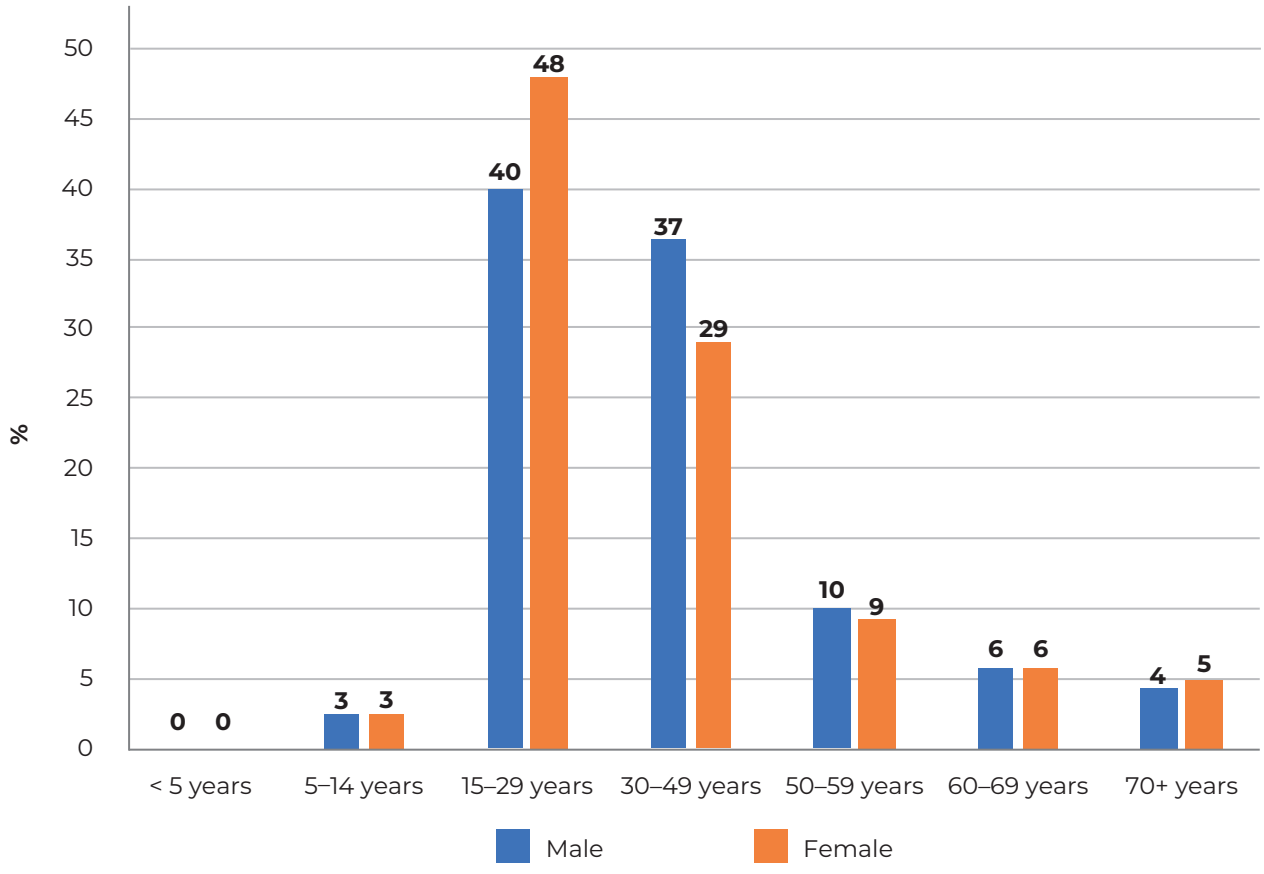

Fig. 8. Deaths from self-harm by sex and age as a percentage, 2021

Males and people aged 15–49 account for most deaths from interpersonal violence

Interpersonal violence accounts for 9.7% of the Region's deaths from violence and injury, 75.0% of which occur in males and 77.6% in people aged 15–49 (see Fig. 9).

"The highest percentage of deaths from drowning (37%) occur in children under the age of five."

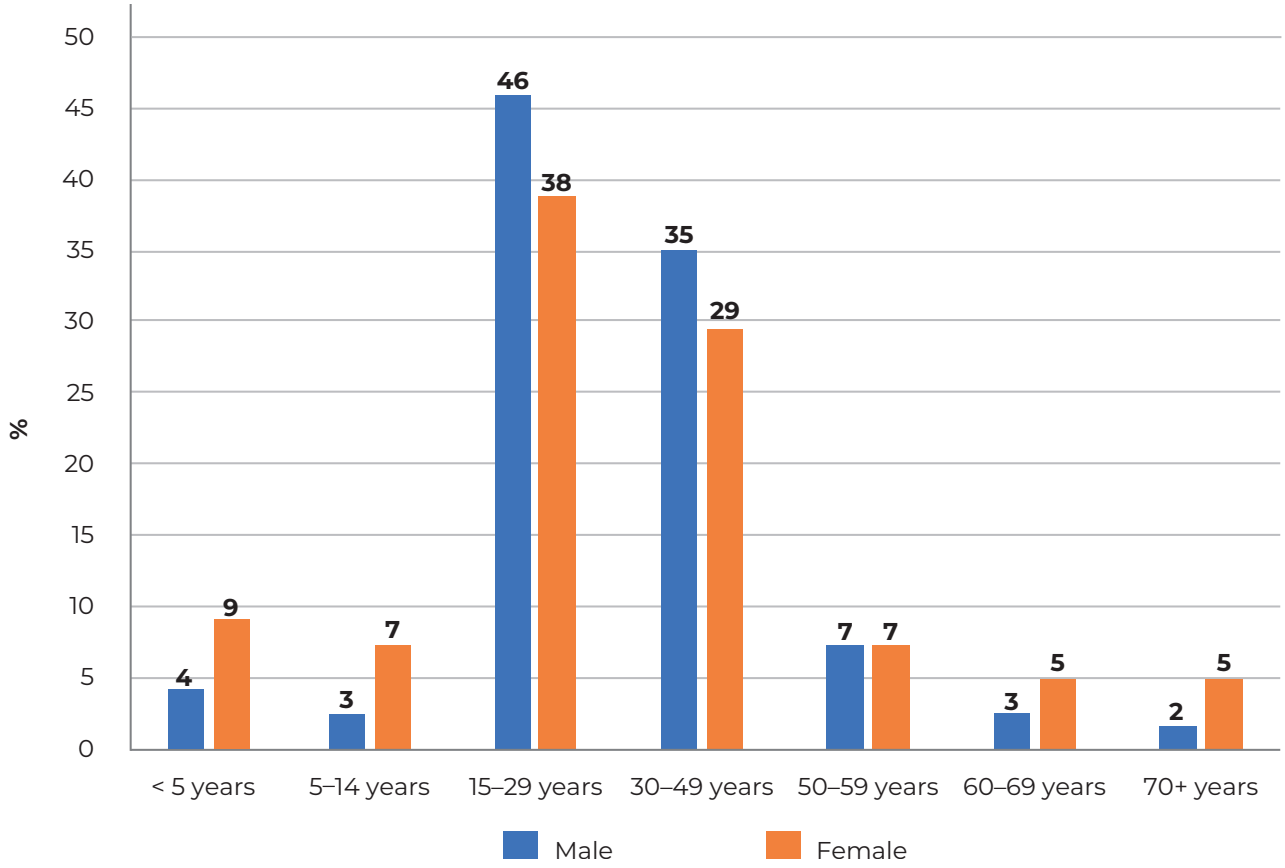

Fig. 9. Deaths from interpersonal violence by sex and age as a percentage, 2021

More than 60% of female victims injured by collective violence and legal intervention are between 15 and 49 years of age

Collective violence and legal intervention account for 18.6% of all deaths from violence and injury in the Region, and more than 80.0% of all such deaths occur in people aged 15–49. Males account for 81.0% of these deaths and females account for 19.0%. (Fig. 10).

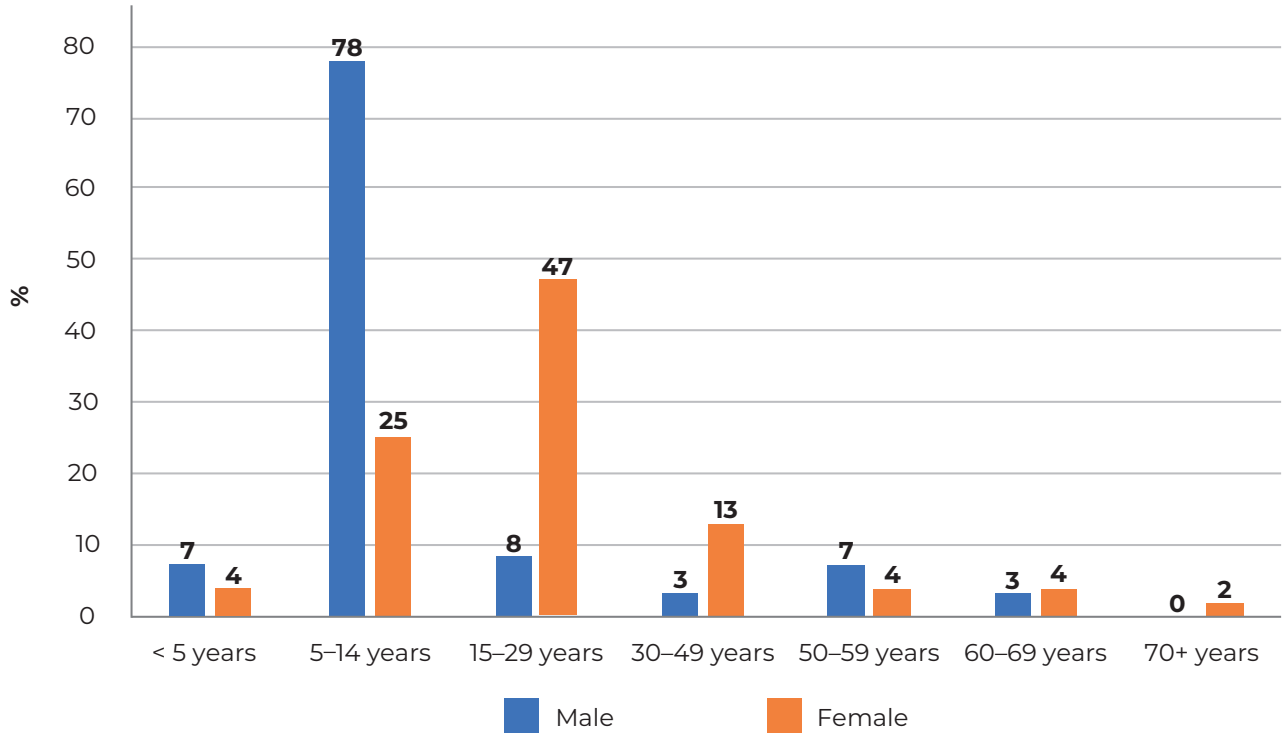

Fig. 10. Percentage of deaths from collective violence and legal interventions by age and sex as a percentage, 2021

Variation according to sex and age exists

GHE analysis for the Eastern Mediterranean Region reveals a variation between different sexes and age groups (see Table 6). For example, burns and poisoning are the top causes of death from injury among females and children under the age of five. Drowning is a main cause of death from injury in children under the age of five while road traffic injuries are a main cause of death from injury among all people aged 5–49; these are trends that do not change according to country-income group.

Table 6. Top causes of death according to sex and age, 2021

Population group and gender	Main causes of injury death
Females	Burns Poisoning Collective violence and legal intervention Interpersonal violence Natural disasters
Children under the age of 5	Burns Poisoning Drowning
Children aged 5–14	Road traffic injuries Collective violence and legal intervention
People aged 15–49	Road traffic injuries Burns, poisoning, falls, drowning Collective violence and legal intervention Self-harm Interpersonal violence
People aged 70 and older	Burns Falls

The consequences of violence and injuries are varied and lasting

The human and social cost of the abrupt loss of a child or parent to violence or injury is high. Deaths from injuries are only the tip of the iceberg. For each injury death, there are more hospital admissions, emergency department or general practitioner treatment, or treatment outside formal medical care. When many people are killed or injured at the same time – be it in a conflict situation, a transport disaster or a fire– entire villages and communities may be shattered.

The economic costs are also high, and while few studies in the Region have attempted to estimate the consequences of injuries, a 2014 WHO analysis of the cost of road traffic injuries in the Eastern Mediterranean Region revealed a greater associated economic burden as a share of the gross domestic product (GDP) than in other regions, ranging from 1.6% in Jordan to 4% in Kuwait. Another study examining the economic costs of such injuries in Egypt found they amounted to about US$ 427 million annually in terms of property losses, lost productivity and medical costs. Similarly, a study in the Islamic Republic of Iran estimated that the total cost of road traffic crashes during the 1-year study period was US$ 7.2 billion – or 2.2% of the country's GDP. Of the total cost, almost half was accounted for by spending on medical services, followed by 34% in productivity losses *(10)*.

Furthermore, those who survive injury or violence may be left with a permanent disability, creating a potentially overwhelming challenge of care and financial cost. At the same time, lack of adequate medical care in low- and middle-income countries means those surviving but disabled by violence or injury may not live long or may succumb to suicide or depression; suffer from drink or drug misuse; or experience HIV or unwanted pregnancy *(7)*.

All this can lead to overburdened health systems (see Fig. 11), economic pressure on the families of those injured or killed, and a huge loss in a country's productivity.

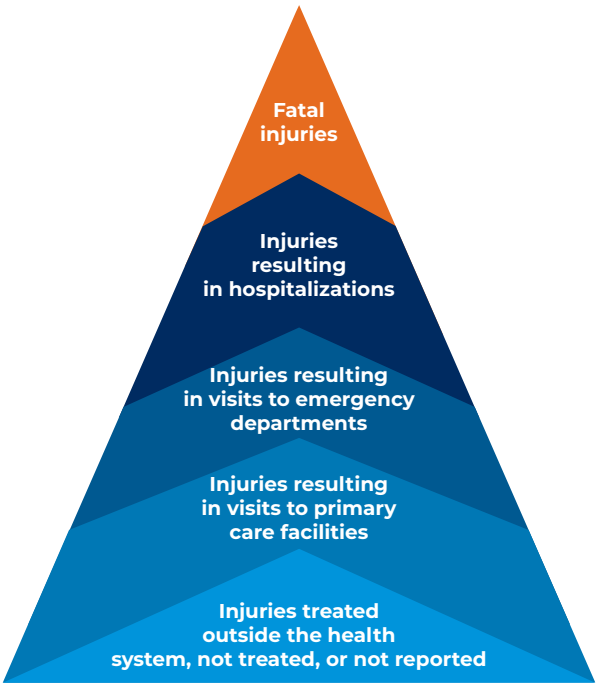

Fig. 11. Injury pyramid: graphic representation of the demand on the health sector by injuries and violence

3. Steps for reducing deaths from violence and injury in the Region

Many intentional and unintentional injuries can be prevented through a broad range of proven science-based effective and cost-effective strategies and interventions *(10)*. Within overall multisectoral efforts, the health sector has a central role in injury prevention, not only in terms of providing care and support but also in applying unique public health models to address the problem *(11)*.

The GHE provide the most accurate, up-to-date data on deaths from violence and injury in the Region and help reveal which countries and population groups bear most of the burden of these deaths. These data can help policy- and decision-makers focus their response. Reducing violence- and injury-related deaths and illness requires reducing the population's exposure to related risk factors (see Introduction). This section provides practical steps to reduce such deaths through implementing a situational analysis and – based on the findings of this analysis – targeted and tailored interventions.

Perform a situational analysis

Implementing interventions to prevent death and injury from violence and injury begins with a situational assessment to establish a number of key facts that are essential to proper prioritization and planning. A situational assessment should provide answers to the following questions:

- What are the most pressing violence and injury issues and their contexts?
- Which intervention could address these issues?
- Is the intervention targeted at the most appropriate location and group?
- Are other relevant efforts under way?
- Is there a regulatory or legislative framework that applies, and if so, is it effectively enforced?
- Which stakeholder groups will have an impact on how effectively the intervention is implemented?
- Do resources – human and financial – to implement the intervention exist, and can these be increased if the intervention needs to be scaled up?
- Does the intervention address violence and injury disparities among different population groups, and promote equity? *(12)*

Five components of a situational assessment

The following five components are essential, though a balance must be found between collecting enough information and not expending too many resources on the collection. For example, the cost of collecting new data must be weighed against the limitations of using existing data to guide action that may save lives.

1. Review available data

Reviewing available data helps decide what populations should be targeted and what type of intervention is likely to have the greatest impact, be it at local or national level. A range of sources may have data on deaths from violence and injury. Formal requests for access to some data sources may be necessary, which emphasizes the importance of establishing collaborative relationships with stakeholders, including government. The following sources of data should be considered:

- Some national as well as regional or provincial health data collection systems will have injury surveillance systems that can provide data on fatal and nonfatal violence and injury events.
- Vital registration systems can provide vital statistics reports with cause of death information, although these systems may have significant deficiencies in low- and middle-income settings, particularly for locations where some rates of death from violence and injury (e.g. drowning, road traffic injury, falls) may be higher.
- Surveys may have been carried out by researchers, violence and injury prevention nongovernmental organizations, community-based organizations or government agencies.
- A range of local or national organizations may maintain records or have information on violence and injury hazards; these organizations include hospitals, the police, coastguard, traffic police, water transport agencies and disaster risk reduction authorities.
- Other, less formal sources can help guide understanding, including media reports (traditional, digital and social media tend to report information on the circumstances of violence and injury events that may not otherwise be available) and local people.
- Data gathered from these sources should be collated and presented in a clear, easily understood format. If data are insufficient, it may be necessary to carry out a dedicated survey to establish a violence and injury profile. WHO has produced guidance for developing and conducting surveys at community level *(13)*.
- The review of available data should provide answers to the following questions regardless of whether an intervention is implemented at local or national level:

- What is the age, sex, race, ethnicity, occupation and income level of those most likely to be affected by (for example) falls, drowning, road traffic injury or interpersonal violence?
- Where and when do such events occur?
- Are data available about the activities taking place at the time of death (e.g. while working, or at leisure or play)? If so, what do they reveal?
- Is the at-risk population changing over time?
- Is the risk itself changing over time?

2. Assess current efforts

Assessing current violence and injury prevention programmes and practice will reveal any work already under way, where it is taking place, by whom it is being carried out and the resources allocated to it. The assessment can also provide important information about the effectiveness of these interventions and any gaps in knowledge and practice. Assessing current efforts requires two activities:

- A desk review of research reports, published papers and programme evaluations. Some of these may have already come to light during the review of available data. Peer reviewed papers and programme evaluations in particular can provide comprehensive information.
- Key informants should be identified and interviewed. Key informants may include international organizations, relevant ministries, academic or research institutions, nongovernmental organizations, health care practitioners, local authorities and community leaders, and local media.

3. Assess existing policy and regulation

This relatively straightforward part of the assessment is primarily done through a desk review, alongside interviews with key informants, possibly from several sectors. At a minimum, the assessment should clarify the following:

- The existence of any laws, regulatory frameworks or policies relevant to the intervention being considered (it may be helpful to tap into international standards to help inform appropriate interventions and ensure their effectiveness, for example, by considering the floating properties of lifejackets, or standards for helmets, seat belts, window locks and so on).
- Which entities have legal jurisdiction and responsibility for the enforcement of relevant laws and regulatory frameworks related to violence and injury prevention.
- Depending on the scope of the intervention(s) being considered, it may also be appropriate for this part of the assessment to develop an understanding of the following:

- Important gaps in existing policy and regulation relevant to each intervention (it may be necessary to look at policies and regulations in use elsewhere to identify these gaps).
- The degree to which measures that are a part of regulatory frameworks or legal requirements are actively enforced.

As with the assessment of current efforts, an opportunity exists to use this component of the situational assessment to develop multisectoral collaboration – for example, ensuring a new law mandating the use of seat belts can be supported by the media in promoting awareness; by road safety organizations in showing people how to use them; by government public awareness adverts; and by the police by enforcing the new law. This can be particularly helpful if there are gaps in existing policy and regulation or failings in enforcement.

4. Determine relevant stakeholders

Compiling a list of stakeholders relevant to the successful implementation of any given violence and injury prevention intervention is the next step in a situation assessment. The method for conducting this depends on the setting and the intervention(s) being considered. A snowballing technique can be useful whereby one set of stakeholders are identified and then asked who they think other stakeholders might be.

An approach that broadly categorizes stakeholders may be helpful. For example, if an intervention to provide childcare for pre-schoolers is being considered, and the intention is to implement this with a very strong research component, then a university or research institution will very likely be a stakeholder *(14)*. It is important to note that stakeholders can be an important source of learning and can greatly extend the skillsets involved in a violence and injury prevention effort. For example,stakeholders can share their expertise in marketing, manufacturing, technology development and preparing business strategies, which may help scale up the project.

Once a list of potential stakeholders has been compiled, strategic attention should be given to the following questions:

- How critical is this stakeholder to the successful implementation of the intervention?
- Are they willing to engage? If not, what needs to be invested to secure their engagement or reduce any resistance?
- What role can they play to enhance the intervention?
- What are the benefits to the prevention effort and the stakeholder?

The stakeholder analysis may also indicate whether an intervention is likely to fail, and if critical stakeholders are not likely to engage it may be advisable to rethink the intervention.

5. Determine human and financial resources

This part of the situational assessment determines the level of financial and human resources available for the intervention and can reveal opportunities for wider collaboration. An argument that may be useful in widening the range of potential collaborators is that investment in violence and injury prevention has the potential to save money elsewhere in the system, since national estimates of annual costs of deaths and illness caused by violence and injury (where studied) can be high.

Determining available human and financial resources is also important for the long-term sustainability and scale-up of the intervention. When considering financial resources it is desirable to diversify funding wherever possible, in particular by obtaining funding from national governments instead of international donors and asking for small amounts from stakeholders to help with so-called buy in. Building human resource capacity involves, among other things, developing, implementing and learning from well-designed research and cultivating local understanding and knowledge through small interventions before bringing interventions to scale.

Implement recommended interventions to prevent violence and injury

WHO recommends many multisectoral interventions to address multiple risk factors for deaths from violence and injury around the world. Broken down by violence and injury risk type, these include the following, among others:

A range of interventions exist to prevent injury and violence across the life-course. These include, but are not limited to, the following *(2, 3, 6, 7, 8, 12, 15):*

Road traffic injuries

- designing safer infrastructure and incorporating road safety features into land-use and transport planning
- improving the safety features of vehicles
- enhancing post-crash care for victims of road traffic crashes
- setting and enforcing laws relating to key risks
- raising public awareness.

Burns

- improving awareness
- developing and enforcing effective policy
- describing the burden and identifying risk factors
- setting research priorities accompanied by the promotion of promising interventions

- providing burn prevention programmes
- strengthening burn care
- strengthening capacities to carry out all of the above.

Drowning *(15)*

- installing barriers controlling access to water
- community-based, supervised childcare for pre-schoolers
- teaching school-aged children swimming and water safety skills
- training bystanders in safe rescue and resuscitation
- building resilience and managing flood risks and other hazards
- training bystanders in safe rescue and resuscitation
- setting and enforcing safe shipping and boating regulations
- promoting multisectoral collaboration
- developing a national water safety strategy
- advancing drowning prevention through data collection and well-designed studies.

Falls

Children and adolescents

- providing parenting programmes for low-income and marginalized families
- providing parents with information about child fall risks and supporting them to reduce these risks around the home.

Workers

- enforcement of more stringent workplace safety regulations in high-risk occupations such as the construction industry
- multicomponent workplace safety programmes.

Older people

- gait, balance and functional training
- t'ai chi
- home assessment and modifications
- reduction or withdrawal of psychotropic drugs
- multifactorial interventions (individual fall-risk assessments followed by tailored interventions and referrals to address identified risks)
- vitamin D supplements for those who are deficient.

Poisoning

- setting and enforcing laws for child-resistant packaging of medicines
- removing toxic products and chemicals from all places in which they can cause a hazard
- packaging drugs in non-lethal quantities
- establishing a poison-control centre in each Member State
- promoting the safe handling, labelling and storage of chemicals
- raising awareness and understanding among pesticide users about the importance of protecting health and the environment from the possible adverse effects of pesticides and how to do this
- establishing national regulation on the registration, labelling, marketing, purchase and use of pesticides
- promoting preventive and educational measures to protect young children from lead in their environment
- educating and informing health professionals on the recognition and treatment of toxic-chemical-related poisoning.

Interpersonal violence

- implementing and enforcing laws
- changing and strengthening antiviolence norms and values
- establishing safe environments
- providing support to parents and caregivers
- providing income and economic strengthening
- providing response and support services
- providing education and life skills.

Self-harm

- reducing access to common means of self-harm, such as firearms, pesticides and certain medications
- implementing policies and interventions to reduce the harmful use of alcohol
- ensuring the early detection and effective treatment of mental disorders, particularly depression and alcohol use disorders
- ensuring the management of people who have attempted suicide or are at risk, including assessment and appropriate follow-up

- training primary health care workers and other gatekeepers who are likely to interact with people at risk of suicide
- adopting guidelines for the responsible reporting of suicide by the media.

Collective violence and legal intervention

- promoting the full adoption of human rights
- promoting the adoption of treaties and other measures restricting the production, distribution and use of anti-personnel landmines
- promoting efforts to decrease the production and availability of biological, chemical, nuclear and other weaponry
- integrating the monitoring of the movement of small arms with other early-warning systems for conflict
- monitoring the adverse effects of globalization and promoting more equitable forms of development and more effective development assistance
- working towards accountable forms of governance.

Undertake multisectoral, cross-cutting activities

Foster political will

The greater the engagement of stakeholders involved in injury prevention, the greater their sense of ownership and motivation, and thus their political will and commitment.

Formulate a strategy and action plan

National injury prevention strategies and/or plans of action can guide national efforts to prevent deaths from injury, nonfatal injuries and disability. Such strategies and plans should include objectives, priorities, timetables and mechanisms for evaluation. The responsibility assigned for all stages of these strategies and plans needs to involve both government and nongovernmental organizations in a multisectoral approach. Some may be developed by a single sector such as health, transport, justice or education, but ideally, they should be developed multisectorally. Depending on national priorities, a strategy or action plan can be for all injury causes or cause-specific.

Strengthen injury data system reporting

Multiple injury data sources exist, such as police reports; emergency department injury records; hospital inpatient records; trauma registries; ambulance records; community-based or household surveys; transport department reports; records of car insurance companies; occupational safety or industrial compensation records; and rehabilitation centre records. Evidence shows that linking these data sources improves the quality of reporting, including by reducing underreporting. Because of their unique access

to victims of injury and violence, ministries of health play an important role in data collection and should be engaged in improving countries' injury data systems.

Strengthen injury prevention research

In many countries, there is a lack of information on risk factors, behavioural determinants and levels of awareness and risk perception. Routine systems cannot provide all the required information about risk factors, so rigorous research is needed to address these gaps.

Raise awareness about injury and violence

Communication and awareness-raising, along with legislation, can influence public opinion and policy-makers and programme managers who play an important role in mobilizing political commitment and the resources needed to advance the policy development process. This can be more effective if it involves community groups, nongovernmental organizations, advocacy groups and the media.

Strengthen post-injury care

The full spectrum of post-injury care must be addressed in order to prevent deaths from injury and improve health outcomes. This full spectrum includes planning and improved access to trauma care systems (prehospital and hospital-based); as well as providing rehabilitation for people with disabilities resulting from violence or injury, and ensuring they have access to the assistive products that they may need.

Monitor and evaluate

The evidence base for violence and injury prevention activities is emerging slowly – especially in low- and middle-income countries – but everyone concerned with such prevention can help it expand through rigorously monitoring and evaluating their own interventions. This means collecting and analysing information about interventions; identifying problems and providing feedback; processing and analysing data promptly; and passing the results to those in a position to take action.

Monitoring requires demonstrating the outcomes of the interventions and strategies via specific sets of indicators (each country may have to develop these indicators, or they may already exist for some violence and injury prevention efforts). In general, these should reveal whether the interventions and strategies reached the intended populations; were delivered as intended (and, if not, whether adjustments made to the interventions and strategies were appropriate to the local context, or had a negative impact on the outcome); and if they were perceived as acceptable by the communities to which they were offered. As with improving monitoring and evaluation systems, shared indicators should be disaggregated by sex and age groups, disability and other

demographic characteristics where relevant. A comprehensive injury data system encompasses data collection and analysis mechanisms that cover:

- outputs – including various enforcement efforts
- intermediate outcomes – e.g. seat belt and helmet-wearing rates and socioeconomic costs associated with injuries
- final outcomes – including any reductions in deaths and injuries.

4. The way forward: preventing deaths from violence and injury

This report shows that the Eastern Mediterranean Region is one of three WHO regions experiencing a slight increase in the proportion of deaths from injury as a percentage of deaths from all causes – a rise from 8.6% in 2000 to 8.8% in 2021. The GHE analysis also shows that the Eastern Mediterranean Region's injury and violence profile varies widely from country to country. This points to the need for undertaking an analysis at country level to urgently identify national priorities for injury prevention.

There is an urgent need to further investigate deaths due to all causes related to violence and injury using detailed sources such as civil and vital registration systems, surveillance systems, trauma registries and community surveys, and to better understand the deaths from injury categorized as being from other causes – including whether such deaths are categorized in this way simply because of missing information. This issue can be further studied through national routine data systems.

Action must be taken to reverse the rising rates of deaths and illness caused by violence and injury. National governments and civil society all have an important role to play increating societies that are safe from the risk of injuries and violence. WHO is working to support Member States in the Eastern Mediterranean Region in many ways, including through supporting strategic planning and coordination, legislative and policy change, enhancing data and research, and strengthening post-injury care.

WHO is also providing detailed guidance and technical packages to help policy-makers and other practitioners to implement these strategies and interventions. Data must be used to target the causes of violence and injury-related deaths, we can reduce these deaths and their intolerable social, emotional and economic impact.

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Annex 1. International definitions of external causes of injuries

Cause of external injury	Definition
Road traffic injury	Transport crashes that injure a pedestrian, pedal cyclist, motorcycle rider, three-wheeled motor or car occupant, occupant of pick-up truck or van, or an occupant of a heavy transport vehicle or bus, and other land transport accidents[1]
Fall	Events that result in a person coming to rest inadvertently on the ground or floor or other lower level [2]
Drowning	The process of experiencing respiratory impairment from submersion/immersion in liquid[3]
Natural disaster	Excessive natural heat or cold; exposure to sunlight; lightning, earthquake, volcanic eruption,avalanche, landslide and other earth movements; cataclysmic storm, flood and other unspecified forces of nature [4]
Fire, heat and hot substances	When some or all of the cells in the skin or other tissues are destroyed by hot liquids (scalds), hot solids (contact burns), or flames (flame burns)[4]
Exposure to mechanical forces	Exposure to inanimate falling objects; equipment; sharp objects; hand tools, machinery; or with animate objects such as mammals, marine animals, and insects[4]
Poisoning	Accidental overdose of drugs; wrong drug given or taken in error; drug taken inadvertently; accidents with the use of drugs, medicaments and biological substances in medical and surgical procedures; contact with venomous animals and plants[4]
Other unintentional injuries	Accidental threats to breathing; exposure to electric current, radiation and extreme ambient air temperature and pressure; contact with venomous animals and plants; overexertion, travel and privation; and accidental exposure to other or unspecified factors[4]
Collective violence and legal intervention	Violence committed by larger groups of individuals, can be subdivided into social, political and economic violence[5]
Self-harm	Violence in which the perpetrator and the victim are the same individual, subdivided into self-abuse and suicide[5]
Interpersonal violence	Violence between individuals, subdivided into family and intimate partner violence and community violence. The former category includes child maltreatment; intimate partner violence; and elder abuse, while the latter is broken down into acquaintance and stranger violence and includes youth violence; assault by strangers; violence related to property crimes; and violence in workplaces and other institutions[5]

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