adRisk
European action on adolescent and injury risk

Injuries and risk-taking among young people in Europe – The European Situation Analysis

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This report provides an overview on the living conditions and health behaviour of young people as well as facts and figures concerning intentional and unintentional injuries of adolescents. Furthermore policies for reducing injuries and injury risk among young people are presented.

The following AdRisk deliverables are available at http:// www.adrisk.eu.com :

- Document: Tackling injuries among adolescents and young adults: strategy and framework for action.
- Document: Good Practices Guide to Prevention of Injuries among Young People.
- Document: Injuries and risk-taking among young people in Europe – Data summary of European situation analysis.
- Document: A Guide for initiating national action on adolescents and injury prevention in Europe.
- Toolbox.

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	National Center for Health Care Audit and Improvement	Hungary	Workpackage 3: Evaluation
KTL Kansanterveyslaitos Folkhälsoinstitutet National Public Health Institute	National Public Health Institute	Finland	Workpackage 4: European Situation Analysis Report and Good Practices Guide
	Consumer Safety Institute	The Netherlands	Workpackage 6: Toolbox development

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ISBN

CONTENTS

LIST OF FIGURES AND TABLES

FIGURES

TABLES

EXECUTIVE SUMMARY

Background

Children and Youth is one of the priority issues outlined in the 2007 EU Council Recommendation which invites Member States to develop national action plans for the prevention of injuries and the promotion of safety. The Community Action on Adolescents and Injury Risk (AdRisk) project ties in with the Council Recommendation by responding to the call for an integrated approach to prevent injuries and reduce the injury risk among young people between the ages of 15 to 24 years. The AdRisk project as a whole focuses on national policy and strategy development, situation analysis, network development and provision of tools and good practices.

The purpose of this European situation analysis is to raise awareness and provide European and national authorities and stakeholders insight into the size and impact of injuries and risk-taking behaviour and the main determinants of risk exposure among young people. The report is targeting authorities, public health professionals, teachers, youth workers, health educators, project leaders and people working in NGOs as well as decision-makers at European, national and local level. Together with the Good Practice Guide this report aims to support and promote injury prevention work in Europe.

In this report, the concept of injury includes both unintentional and intentional injuries. Unintentional injury is a physical harm caused unintentionally by external factors. Unintentional injuries are subdivided by their causal mechanism. Transport, falls and poisonings are examples of such injuries. Intentional injuries are deliberately inflicted and include self-inflicted injuries, and interpersonal and collective violence.

Young people's injuries

In the EU27, there were over 62 million young people aged 15–24 in 2006, representing 15% of the total population. Every year more than 20 000 people in this age group die due to injuries, which is 65% of all young people's deaths. Traffic accidents and suicides are the most common causes for injury deaths.

Injuries are also an important cause of morbidity in young people. The most common nonfatal injuries occur during sport activities. The data clearly shows that young males are more at risk of injuries than females. The total number of hospitalisations and deaths in young people is three times higher in males than in females.

Differences between European countries are substantive. Furthermore, the differences within the countries are remarkable. People with low socio-economic status are more at risk for injuries than wealthier people. For example, the risk of dying from poisoning is 17 times higher in countries where household income is below average compared to countries showing above average household income. However, sports injuries tend to be more prevalent in higher socio-economic groups.

In general, drug and alcohol use is highly associated with an increased risk of injurious death. Young people aged 15–24 use alcohol more at a time than other population groups, and males are more likely than females to engage in excessive drinking. High self-esteem or self-concept, internal locus of control, few stressful events in childhood, good communication skills, sense of togetherness in the family, mother's educational level and physical activity have been found to be negatively associated with alcohol use.

Accidental injuries

Injuries due to traffic accidents represent over 40% of all young people's fatal injuries (including violence and suicides). The highest mortality rates related to traffic accidents are found in Lithuania, Greece and Latvia and the lowest in the Netherlands, Finland and the United Kingdom. Traumatic brain injury resulting from a traffic accident is the leading cause of death or hospitalisation. The frequency of traffic accidents with serious health effects is much higher at night-time in general and during weekends especially. Alcohol and drug use, inexperience as a driver, thrill-seeking, low socio-economic status, not using protective equipment (helmets, seat belts) and peer pressure are risk factors for young people's traffic injuries.

Poisonings account for 6% of young people's unintentional injury deaths. Poisoning mortality varies significantly across the EU27 with Estonia, Greece, Latvia and Finland having the highest and Portugal, Austria and Germany the lowest rates.

Drowning injuries account for less than 5% of all fatal unintentional injuries among young people aged 15–24 in the EU27. Most of these injuries occur in Lithuania, Estonia, Romania and Latvia and the fewest occur in Malta, Germany, and the United Kingdom. Approximately every third drowning victim is under the influence of alcohol. Most of young people's drowning injuries occur in open waters. The most common activities among young people leading to drowning injuries are swimming and boating. Drowning injuries are over-represented during the weekends and in the warm months of the year.

In 2005, mortality among young people due to falls was less than 1/100 000 in the EU27. Fall-related mortality represents 4% of the total mortality from unintentional injuries. However, falls are an important cause of morbidity and disability in young people. A large part of young people's fall injuries occur in sports, during recreational activities and at work.

The lack of a consistent definition and the inadequate registration of sports injuries make it difficult to estimate the prevalence of sports injuries within the EU as a whole. A great part of young people's non-fatal home and leisure time-related injuries are caused by sports and leisure time activities among young people. It has been estimated that sports injuries requiring medical attention are more frequent among young people than among older age groups. Certain sports, frequency of physical activity, previous injury, body composition, and material well-being have been associated with an increased sports injury risk. Young men sustain more sports injuries and are more often treated for them in hospitals than young women.

Young workers are more often involved in occupational injuries than older workers. Fortunately their injuries are less often fatal. Between 2002 and 2004, a total of 638 young workers died from work-related injuries within the EU15. The proportion of this age group of all work-related fatalities was 9%. Farms, construction sites, and manufacturing industries are the most hazardous working places. For example, fast pace of work, fixed-term contracts, lack of experience, and working without supervision increase the injury risk among young workers. In addition, safety training of young workers can often be insufficient.

Intentional injuries

Of all death causes among young people aged 15–24, suicides are the second most common cause of death. Young males' suicide mortality is fourfold higher than that of young females. Self-harm with less severe consequences consists for example of self-cutting, overdose, alcohol use or hanging. The trigger for self-harm and suicide could be an unfortunate event, such as a relationship breakdown, interpersonal problem or financial difficulty. Other factors associated with self-harm and suicide include depression and other psychiatric disorders such as unsupportive family environment, previous attempt of suicide, family history of suicide, affiliations with deviant peer groups, binge drinking, being bullied, feeling of isolation, and being victimised by violence.

Young people's aged 15–24 mortality from violence is below 1/100 000 in most of the countries in the EU27. However, research on non-fatal violence indicates that for every youth violence-related death there are 20–40 victims of violence requiring hospital treatment. Violence among youth can take many different forms, e.g. bullying, gang violence, sexual aggression, assaults occurring in streets, bars and nightclubs, and homicides. Young people are much more likely than the population in general to become both victims and perpetrators of non-fatal violence. Perpetrators of violence are often simultaneously victims of violence too.

Young people's risk-taking

Young people's risk-taking behaviours are associated with more injuries. Risk-taking is a contested term and it is not used in a uniform way across the literature. There is an on-going debate of the causes of risk-taking behaviour and whether it can be used as a homogenous concept. In this report, risk-taking is understood to contain certain behaviours considered to be associated with a heightened injury risk. Such behaviours are drinking and driving, alcohol use in general, self-harm, violent behaviour, reckless driving, unsafe sex, cannabis use, and risky sports.

Young people are often well aware of the dangers of risky behaviours; however, they are more inclined than adults to engage in them. By engaging in risk-taking behaviours a young individual is trying out his/her limits. Risk-taking may be defined as voluntary exposure to risk and danger, which is always a trade-off between short-term gains and potential long-term adverse consequences.

Risk-taking behaviour in young people is particularly prevalent in young people who are more peer-oriented. For example, young people often take part in group-based activities which involve risky behaviours such as drinking and driving. When youngsters get involved in risky behaviour in a group, they tend to identify more with the norms of their peers than those set by their parents or school. Risk-taking behaviour tends to start in early adolescence. In general, boys are more likely to become actively involved in risk-taking behaviours that may lead to injuries than girls.

Risk-taking behaviour is an overarching concept that at least partly explains the high toll of injuries in young people. The question is whether prevention campaigns and measures should concentrate on risk-taking behaviour in general or be more tailor-made and target specific risk groups? A recent review on studies related to injuries and sport, transport, drugs and alcohol among young people states: "While there is a large literature on a 'culture of risk-taking' among young people, the evidence to support the view that this translates into significant numbers of injuries is limited." On the other hand, an earlier study focusing on young people revealed that those who engage less in risk-taking are also less likely to have injuries. Risk-taking behaviour can be considered as one important factor to explain the increased risk of injuries in young people, but there is still a need for further studies on the association between injuries and risk-taking.

Policies targeting prevention of young people's injuries

Although European countries have numerous different policies including issues about injury prevention among young people, specific national policies addressing youth injury prevention are uncommon. Most often injury prevention is part of a broader health policy targeting all age groups. However, there is willingness for further development of national injury prevention action plans as recommended by the WHO and EU.

In order to prevent injuries countries ought to: 1) recognise injury as a major health problem and put it on the agenda of health policy, 2) develop national surveillance systems and action plans for injury prevention, and 3) promote intersectoral collaboration to ensure that injury prevention is properly integrated into different policies.

Structural and environmental measures such as legislation, protective equipment and changes to the physical environment have proven effective in preventing injuries in young people. However, there is a limit to how far legislative and structural changes can affect the injury problem. In addition, specific educational measures are needed in order to make an attitude change towards risk-taking and injuries and to develop risk competence. Educational measures, such as risk competence and capacity training, that concentrate on building resilience as well as coping skills for dealing with risky situations have proven rewarding.

Young people's injuries are complex phenomena. Rather than finding one single measure to tackle the issue, a new, holistic approach ought to be taken. A combination of educational, structural and environmental measures is likely to be successful in preventing injuries in young people. Furthermore, in order to achieve an impact, injury prevention activities ought to be initiated simultaneously at different levels of society and included in the official agenda of healthcare systems and schools. More specific recommendations are presented later in this publication.

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Heli Kumpula and Meri Paavola

INTRODUCTION

Injuries are the leading cause of death and hospitalisation among young people aged 15–24 years in Europe. In the EU Member States, injuries account for two thirds of all deaths and one fifth of visits to Ambulance and Emergency (A&E) Departments in this age group. [1, 2.] While progress has been made in preventing injury deaths and disability in both older and younger age groups, young people remain at increased risk of injuries.

In order to reduce the burden of injuries in Europe, the European Commission has approved a grant for a European-wide programme targeting injury prevention among young people in Europe. The Community Action on Adolescents and Injury Risk – AdRisk - project aims to respond to the call for an integrated approach to prevent injuries and reduce injury risk among young people aged 15–24 years. AdRisk refers to the 2006 EC Communication "Actions for a safer Europe" [3], which defines injury and accident prevention as a public health priority. The AdRisk project as a whole focuses on situation analysis, national policy and strategy development, network development, and the provision of tools and good practices.

The AdRisk project is coordinated by Austrian Road Safety KfV (Austria) and the other partners are ULSS 20 Verona-Regione Veneto (Italy), National Institute of Public Health (Hungary), Consumer Safety Institute (The Netherlands) and National Public Health Institute KTL (Finland). The Finnish team was responsible for the preparation of this report, the European Situation Analysis, and the Good Practice Guide.

Purpose of the European Situation Analysis

The purpose of this analysis is to raise awareness and provide the European and national authorities and stakeholders with an insight into the size and impact of injuries and risk-taking behaviour and the main determinants of risk exposure among young people aged 15–24. The report is targeting authorities, public health professionals, teachers, youth workers, health educators, project leaders and people working in NGOs as well as decision makers at European, national and local level. The Ministries of Health and other ministries are among the key target audiences for the report. Together with the Good Practice Guide this report aims to support and promote injury prevention work in Europe.

The European Situation Analysis together with Good Practice Guide (published separately) will be used to develop an evidence-based response to prevent injuries and risk-taking behaviour among young people at different levels and settings. The Good Practice Guide introduces interventions addressing

young people in general and in injury prevention strategies in particular. Both of these documents together with a website toolbox can be used as a resource for developing injury risk reduction strategies for the age group of 15– 24-year-olds.

By analysing and presenting the injury issue in a comprehensive way, the societal impact can be better profiled and the need for pulling resources into the issue more strongly advocated. The report also contributes to a cross-fertilisation of knowledge and experience in addressing adolescent risk-taking behaviours.

Focus and definitions

In this report the term *young people* refers to the age group of 15–24 years. The concept of *injury* is understood broadly and includes both unintentional and intentional injuries when they have been classified according to their cause [4]. *Unintentional injury* is a physical harm caused unintentionally by external factors. Different types of unintentional injuries can be distinguished on the basis of their causal mechanisms, such as poisoning, drowning, falls, road traffic injuries etc. *Intentional injuries* are deliberately inflicted and include self-inflicted injuries, interpersonal, and collective violence. Self-inflicted injuries (i.e. suicide, attempted suicide, self-abuse) are caused by the person herself or himself, and interpersonal violence includes injuries caused intentionally by another person (injuries inflicted by one person against another). Intentional injuries caused by collective violence are, for example, due to war, civil insurrection, and acts of terrorism [4]. *Risk-taking* is a contested term, which is not used in a uniform way across the literature. There is an ongoing debate of the causes of risk-taking behaviour and whether it can be used as a homogenous concept. [5.] In this report, risk-taking is understood to contain certain behaviours considered to be associated with heightened injury risk. Such behaviours are drinking and driving, alcohol use in general, self-harm, violent behaviour, reckless driving, unsafe sex, cannabis use, and risky sports (see Chapter 2).

All the items included in the concept of 'injury' are very large by themselves; therefore this report can give just a broad overview about the situation in Europe. Additionally, in the report, somewhat more emphasis is placed on unintentional injuries rather than on intentional injuries. The availability of comparable, updated and relevant statistics or long-term trends of injuries, especially in this age group (15–24-year-olds), varies greatly, and there were often difficulties in finding comprehensive data from the literature or databases. Additionally, there exists a limited literature to support the view that risk-taking translates into significant numbers of injuries.

In the statistics presented in this report, *Europe* refers to different combinations of countries, depending on the source of the study or statistics presented. Europe can comprise the current twenty-seven Member States of the European Union (EU27), the earlier combination of the fifteen or twenty-five Member States (EU15 or EU25), or WHO Euro comprising altogether fifty-three Member States of the WHO in Europe. This report may also refer to studies conducted in other parts of the world, especially in the USA, due to the lack of specific European studies.

Methodology

The following working methods and data sources have been used:

1) Desk research to be performed as regards injury statistics (e.g. Eurostat, Injury Database), identification of risk factors and determinants by a systematic literature review from the databases; mostly from PubMed, but also from Web of Science, PsycInfo and Cochrane Review.

   The Injury Database (IDB) [2] is a database on non-fatal home, leisure and sports accidents. It is an internet database set up by DG SANCO under the Injury Prevention Programme in 1999, in order to provide central access to the data collected in the Member States under the EHLASS Programme (European Home and Leisure Accident Surveillance System). The IDB is the only data source in the EU that contains sufficient detail for developing preventive action against the rising tide of home and leisure accidents in Europe. The purpose of the IDB is to facilitate injury prevention in the Member States and at EU level - through trans-national aggregation and harmonisation of data, and through reporting and benchmarking. The number of countries involved in the IDB differs in different years. It should also be noted that the IDB study protocol records only injuries requiring medical attention. In addition, other exclusion criteria in this protocol may lead to an underestimate of the actual injury rate. In order to have better figures on young people's morbidity in injuries, IDB data was analysed for AdRisk project especially concerning young people aged 15–24 years.

2) Consultation of European experts from different fields of injuries, AdRisk team and EuroSafe network
3) National policies and actions in Europe were studied using a survey carried out among the WHO network of focal points for injury prevention and for violence prevention in Europe (Chapter 4).
4) This report was reviewed and evaluated by high-level experts in the field.

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1. Young people in Europe

In the EU27[1] there were over 62 million young people aged 15–24 in 2006, representing 15% of the total population [1]. In the EU, the number of young people and their proportion of the total population are slowly declining. At least two factors explain the phenomenon: the fertility rate has fallen in many countries in the EU27 [1, 2] and against the prolonged life expectancy people born during the post-war baby boom are reaching retirement. [3.]

The years 15–24 represent a transitory age in life as these young people move out from their childhood homes and eventually start to live independently. In general terms the transition period from childhood to adulthood in the industrialised countries contains four main steps: leaving the childhood home, finishing education, finding a job and forming a couple [3, 4]. In the last decades the life of young people in Europe has undergone certain changes as transition from education to working life has slowed down. The concept of "youth" is expanding since young people stay longer in education and they leave their parental homes later. They also wait longer before they get married and form their own families. [4, 5.] Regardless of the changes and challenges young people face they report being in good health, high levels of well-being and satisfaction with their lives [6-8].
Injuries are related to the lifestyles of young people and occur in varying settings, e.g. in traffic, at home, during leisure time and in school. Young people spend a lot of their free time doing sports, socialising with friends, watching television and listening to music [9]. Recently young people's time spent in sedentary activities has grown due to the increasing time spent playing video games and surfing on the Internet [5].

There appears to be a divide in values between northern and southern EU countries; while young people in the northern countries are more liberal and individualistic, showing appreciation of freedom, tolerance and permissiveness, those in the southern countries are more family-oriented and conservative [10]. However, there seems to be an on-going shift towards more individualistic values across the entire Europe [10, 11].

[1] Includes following countries: Austria (AT), Belgium (BE), Cyprus (CY), Greece (GR), Czech Republic (CZ), Denmark (DK), Estonia (EE), France (FR), Finland (FI), Germany (DE), Hungary (HU), Italy (IT), Ireland (IE), Latvia (LV), Lithuania (LT), Luxemburg (LU), Malta (MT), Netherlands (NL), Poland (PL), Portugal (PT), Slovakia (SK), Slovenia (SV), Spain (ES), Sweden (SE), United Kingdom (UK), Romania (RO), Bulgaria (BG).

In this chapter, a general outlook on young people's lives and life spheres in the EU27 is presented, with the purpose of introducing the reader to the living conditions of young people and to provide more insight into the reasons that lie behind young people's high toll of injuries and engagement in risk-taking behaviours. Young people's (15–24 years) different areas of life are reviewed, including education, living conditions, transition to labour market, leisure time, use of money, attitudes, perceived health and health behaviour. The first section (1.1) focuses on young people's life spheres and living conditions, the second section (1.2) on young people's perceived health and health behaviours. Injury mortality figures and some data on injury morbidity are presented in chapter 3.

1.1 Young people's life spheres and living conditions in Europe

Education

In most of the EU Member States, the compulsory full-time education ends at the age of 15–16. However, the vast majority of young people choose to continue their education [2].

Most of the young people (60%) aged 15–24 in the EU27 were still in education in 2005 [1]. The percentage is higher among those under the age of 18: more than four out of five young people aged 17 were still in education in 2005. According to UNICEF's study on child well-being the highest percentage of those 15–19-year-olds who are in education, training or employment is found in Belgium, the Czech Republic and Germany while the lowest percentages are found in France, Italy and Austria. [7.] In today's Europe up to 50% of the population have a higher education diploma [12].

The number of young adults aged 20–24 in tertiary[2] education is increasing. In the academic year 2002–2003 there were 17 million students in the EU25, which was 7 million students more than in the academic year 1999–2000 [2]. In the EU25 a little less than 40% of the young adults aged 20–24 were in tertiary education in the academic year 2002–2003. In Finland the proportion of tertiary students is the highest (over 60%) in the EU25 while it is substantially lower in Malta, Cyprus, Slovakia and the Czech Republic (less than 30%). The most popular fields of study in the Union are social sciences,

[2] Categories of the educational system in the EU: Pre-primary education; Level 1 - Primary education or first stage of basic education; Level 2 - Lower secondary or second stage of basic education; Level 3 - (Upper) secondary education; Level 4 - Post-secondary non-tertiary education; Level 5 - First stage of tertiary education; and Level 6 - Second stage of tertiary education. [13].

business and law; with one third of the students being enrolled in these subjects. [13.]

The overall participation rates in education after the compulsory schooling are higher among females than males. In the EU as a whole there are more men in vocational education, whereas women opt for general upper-secondary education. [3.] Furthermore, the majority of tertiary level students are female; their proportion in higher education in the EU27 is 55%. [1]. In the EU25, there were 121 female students for every 100 male students in 2003–2004. In the Baltic countries, the ratio was more than 150 and in Sweden 147. Males' ratio exceeds that of females' only in Germany (98 to 100) and Cyprus (92 to 100). [2.] In addition, more women than men graduate. Women predominate in education, health and welfare, arts and medical faculties, and men dominate in the sciences, mathematics, computer sciences, engineering, manufacturing and construction. [1, 2, 13.]

The school and school environment affect the youth's life [14]. Young people still in education spend most of their time in the educational institution's facilities. The institution and the youth culture in it may have a strong impact on an individual's attitudes and behavioural customs. Schools can be socially very well-knit; this applies especially to primary and secondary level education where a lot of pupils follow the same teaching timetable. From the attitudes and behaviours of peers and teachers young people learn what is appropriate and allowed, and what is not. [14.]

Even though young Europeans are well educated, the number of students leaving school early is notable. Of the young people aged 18–24, 15% were early school leavers, i.e. had attained at most the lower secondary level and were not in further education or training in 2005. In some countries the percentage of early school leavers was even higher, e.g. in Spain, Portugal and Malta over 30% were classified as early school leavers. [2.]

Living conditions, civil status and financial independence

Young people in the Member States tend to stay longer than before in their family homes. Over 60% of young people aged 15–24 still lived at home in the EU15 in year 2001. [5.] This is explained by two factors, firstly, more young people go into higher education and, secondly, young people stay longer in the parental homes for economic reasons [4, 5].

Young people in the EU27 cite material reasons to explain why they choose not to leave the parental home; either there are not enough financial resources to live independently or there is a lack of suitable housing [15]. Other reasons include the easiness of living at their parents' place without responsibilities, saving up to make a good start later, parents not being overly strict any more and the fact that people are getting married or moving in with their partners later than they used to [4, 15]. It is typical that in the EU15 young people in the southern Member States and Ireland stay longer in their parental homes when compared to northern Europeans [4].

Young people's financial funds tend to be notably lower than those of the older population. Young people aged 16–24 had the highest score in 'risk of poverty', i.e. had an equivalised household disposable income below 60% of the national median for the country in which they lived in 2004. From this age group 21% were at risk of poverty while in the whole EU25 the percentage was 16% in 2004. [15.]

Even if the young people live outside their family homes, many of them still depend on the financial support of their families [2]. Furthermore, the main source of income differs between the age groups of 15–19 and 20–24 years. In the younger age group, relatives or partners are the main source of income (55% *vs.* 25%) whereas in the older group, it is their regular job (14% *vs.* 43%). Only one in ten in both age groups cited training allowance or educational grant as the main source of income. [2.]

It is unusual for people aged less than 20 years to live as part of a couple. Cohabiting without being married is rare in the southern Member States and Ireland but common in the northern Member States. [3, 4, 10.] Women postpone childbirth in order to build their careers [12]. In the EU15 young people's primary concern for the future is finding a secure job and having a stable relationship. These two factors also influence most strongly young people's decision to have children. [16].

Young women tend to leave their parent's home and start cohabiting earlier than men. In the EU15, of the young women aged 20–24 more than 30% were living either alone or with somebody of their own age in 2001, compared to just over 20% among men in this age group. [9.]

Transition into the labour market

Transition into the labour market takes place later than before in young people's lives. In 2005, in the EU25, a 50% employment rate was not reached until at the age of 22 (in the reference week respondents had at least one paid hour). However, there are considerable differences between the countries. The average age is 24 years in Luxembourg, Poland and Romania, 16 years in Denmark and

Iceland, and 17 years in the Netherlands and the United Kingdom. In the latter countries, where the average age for 50% employment is low, many young people are working part-time. [5.]

The average unemployment rate in the EU27 for population aged less than 25 years was relatively high (17%) when compared with that of 25-year-olds and up (7%) in 2007 [1]. According to the Eurobarometer 2005 survey (2005) young Europeans aged 15–24 think that the fighting against unemployment (52%) and poverty and social exclusion (45%) ought to be among the priorities of the Union [17]. From the 1980s young people have found it difficult to get a job and they are entering the job market later [17].

Many students within the European Union combine studying with working. They do so mainly for financial reasons, as with mass higher education systems the governments' funding has declined leaving students to find their own way of dealing with the daily living costs. Another reason for combining studying with working is the aim to improve one's prospects in the future labour market. Moreover, students are attractive to employers offering part-time or short-term contracts, since they are flexible workforce and can cover for evening and weekend shifts. Youth's transition from education to labour market is a gradual process which does not have an exact start or beginning. [4, 18.]

As stated by the young people themselves, the most useful qualities for finding work are good qualifications, communication and teamwork skills, having completed an apprenticeship or training course, IT and computer skills, and knowledge of foreign languages [15, 17]. Moreover, young people are of the opinion that a lack of training or practice is the most important hindrance to their finding a job.

One in two young people mention the lack of training opportunities and one in four cite the lack of practical experience. Respondents in the new Member States are more likely to mention a reason that relates to them personally, e.g. lack of practical experience, than respondents in the EU15. Language difficulties are cited most often as the reason why young people might have difficulties in finding a job abroad. [15.]

Immigrants and ethnic minorities have more difficulties in finding a job than natives. Some of the foreigners are unemployed because they do not have sufficient knowledge of the language spoken. Women have more difficulties in finding permanent, full-time jobs than men. More women than men work in mismatched jobs, i.e. their jobs description does not match with their qualifications. [12.]

Today's young Europeans are slightly better educated, yet they earn considerably less than their elders

[3]. Many of the job contracts offered to young people are part-time or short-time contracts [4, 12]. Plenty of young people find employment in the service sector; people aged 15–29 find employment in clerical jobs, services and sales, crafts and manual jobs [3]. Naturally the job positions that the young

people opt for depend on their educational level. Graduates from tertiary education enter professional services occupations, upper secondary level graduates normally find employment in lower level services and manual occupations and young people with lower secondary education mostly enter manual positions. [12.]

Young people's inclusion into the job market depends not only on their qualifications but also on the training and jobs that are offered to them after school [7]. Further, their success in entering the labour market depends on their experience, and factors like availability of graduate jobs, level of education and gender. Some employers do have jobs especially suited for graduates that require little working experience. However, there is a lot of variation in the type of jobs on offer in different countries in the European Union. In some countries the jobs on offer for graduates are few. [12.]
Young people with high levels of education have fewer difficulties in finding employment [4, 12]. However, their first jobs might mismatch with their qualifications. The humanities and arts graduates have more difficulty in finding the first significant job. On the other hand, health and welfare, business, law and social sciences graduates have relatively low chances of experiencing a mismatch. [12.]

Leisure time

According to Eurobarometer opinion poll (2007) young Europeans aged 15–30 rank physical activities (e.g. going for a walk, bike ride, practising sports) and meeting with friends (e.g. eating, dancing, having a drink, hanging out) as their top priorities for leisure time activities (Figure Y1) [15]. Reading a book is mentioned by one in four young people as an activity they frequently engage in. Using the Internet and playing digital games and watching television are mentioned by one in five. Also, listening to music and going to the cinema, theatre or concerts are frequently cited. Other activities, mentioned by one in ten young people or less, included shopping, playing an instrument, doing some work for money and participating in voluntary or community work. [15.]

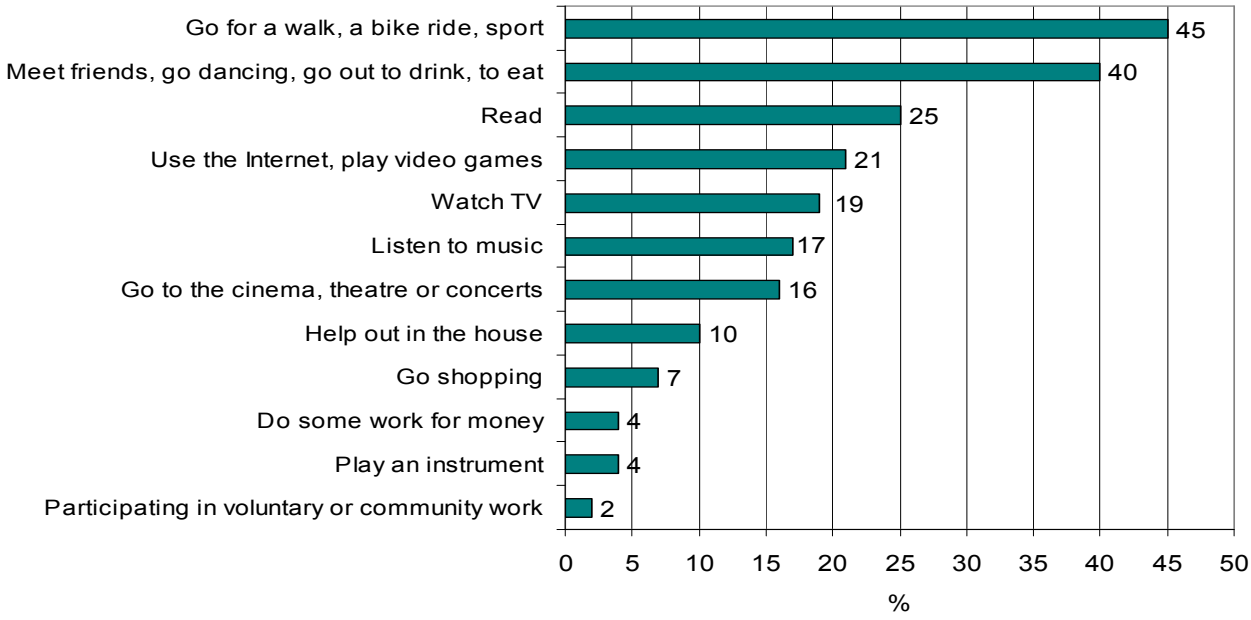

Figure Y1. Leisure time activities among young people aged 15–30 (%).
Source: European Commission (2007): Young Europeans. A survey among young people aged between 15–30 in the European Union. Flash Eurobarometer 202: The Gallup Organization.

Young people in the different EU27 countries rank these priorities mostly similarly, yet with some exceptions. For example, while television viewing is young people's most frequent leisure time activity in Portugal, it is the second most frequent activity in Cyprus, Romania and Bulgaria. [15.]

Among the most popular activities, no remarkable differences in the frequency are seen between the countries, the most notable being the time spent in helping out in the house. Young people in the new Member States are more likely to report (16% *vs.* 8%) spending part of their leisure time in helping out in the house than respondents in the EU15. The difference is highlighted between Latvia, Romania, Estonia and Slovakia where one in five young people cite helping out in the house and Germany, Ireland and the Netherlands where only one in 20 respondents cited helping in the house. [15.]

Based on the Eurobarometer 2007 survey, as compared to females, males tend to spend more time doing sports (50% *vs.* 40%) and using the Internet and playing video games (27% *vs.* 15%). On the other hand females spend more time reading (19% *vs.* 32%). [15.] These results are in line with other studies on leisure time expenditure. In the EU15 men report practising more physical activities than women.

However, the frequency of regular exercise is high in both genders, over 80% of young men aged 15–24 report to spend more than 2 hours a week doing physical exercise, while the equivalent percentage is 70% for their female counterparts. The most popular exercises are football among men and walking among women. [9.] University students tend to exercise more than those with less education [19], and they are also healthier than other populations [20].

Respondents aged 20–24 years are more likely than the youngest age category, 15–19-yearolds, to mention reading (23% *vs.* 21%), going to cinema, theatre or concerts (17% *vs.* 13%) and helping out in the house (9% *vs.* 6%). The youngest age category in turn report more socialising with friends (40% *vs.* 48%), using the Internet and playing video digital games (20% *vs.* 27%), doing exercise (43% *vs.* 46%) and listening to music (16% *vs.* 20%). [15.]

Young people in rural versus urban or metropolitan areas report less often going to cinema, theatre or concerts, listening to music, reading, meeting friends, and going out to dance or eat. However, the respondents living in rural areas report more helping out in the house. [15.]

According to the Health Behaviour among School Aged Children (HBSC) study adolescents aged 15 spend a lot of time in sedentary activities, such as watching television, playing and working with computers and doing school homework [6]. In general, 15-year-olds boys report spending more time watching television and using computer than adolescent girls. The gender difference is significant especially in computer use, with 23.6% of boys reporting using computer for three hours or more a day compared to only 7.7% of girls reporting the same. However, girls spend more time on homework than boys. [15.]

With respect to participation in community life, i.e. belonging to an organisation or association, young people are less active than older populations [15, 16]. One in five young people aged 15–24 said they belong to an association. Young people who remained in education after the age of 20 were more likely to participate in associations than those who completed their education before the age of 20 years. [15.] The most popular organisation for young people is a sport club (50%). Young people in the EU15 are more likely to belong to an association than their counterparts in the new member states. Among the respondents from the EU15, a north-south divide can be seen with more than 40% of the respondents in Denmark, Germany, Sweden, Austria and the Netherlands citing association memberships compared to less than 15% in Greece, Spain, Italy and Portugal. Males are more likely than females to belong to associations (26% *vs.* 18%). Furthermore, young people in rural areas are more likely to report

belonging to an association than those in urban or metropolitan areas (27% *vs.* 20% and 22%). [15.] Membership associations are more likely to be sports-related among males than females (24% *vs.* 41%). Female respondents are more likely to be members of cultural or artistic associations (10% *vs.* 6%) or religious or parish organisations (7% *vs.* 3%). [15.]

Use of money

There are gender differences in the pattern of expenditure among those under 30 years of age; in general, women in the EU15 spend more money on clothes and shoes than men, and men spend more money on alcohol than women [9]. Young people spend a lot of money on cultural and recreational activities, which include expenditure on technology, recreational equipment, fees for the use of facilities and football grounds, cinemas and theatre. On average men tend to spend more on recreation and culture than women in most Member States. A substantial part of this expenditure involves televisions, stereos and other audiovisual equipment. On the other hand women spend more on books, newspapers and periodicals, which is consistent with the finding that women devote more time to reading for pleasure. [9.]

1.2 Young people's perceived health and health behaviour

According to studies based on self-reports, young people in Europe are in good health, rank their well-being high (Figure Y2) and are satisfied with their lives [6-8]. In general, young people living in Europe today benefit from better nutrition, health and development than ever before, but there are still striking inequalities between and within the countries [21].

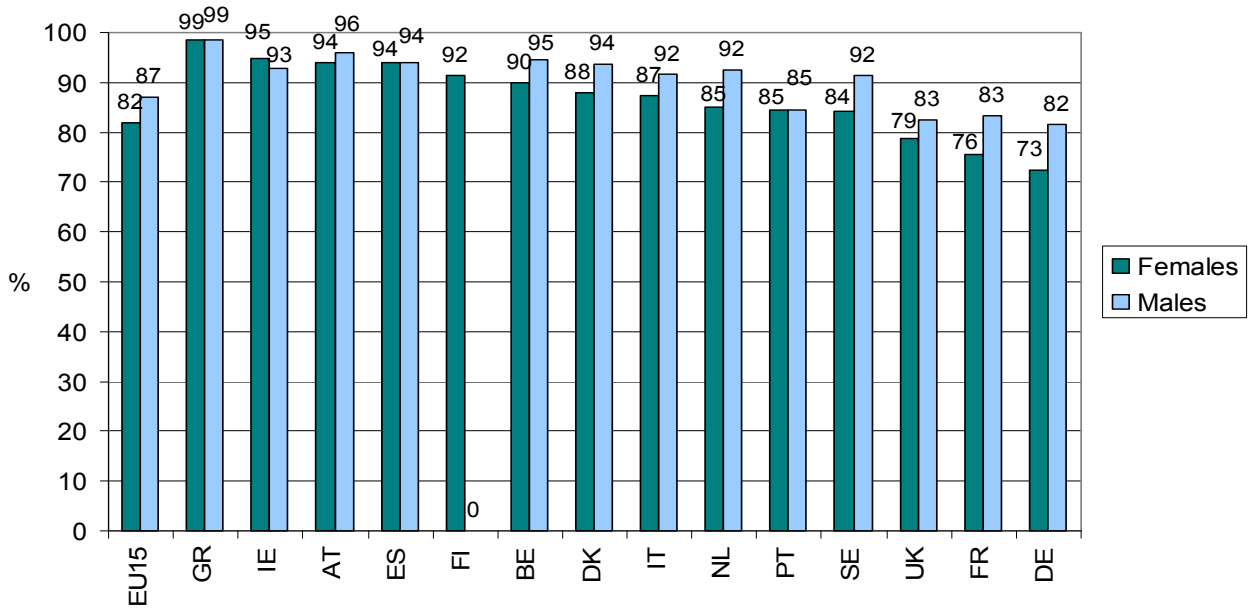

Figure Y2. Self-perceived well-being rated as "very good or good" (%) among 15–24-year-olds in the EU15 and in some EU-countries in 2003.
Source: Eurostat (2007): Health status: indicators from the national Health Interview Surveys. [8.]

Most of the young people in the EU are satisfied with their lives. According to a European social survey conducted in 22 EU-countries, young people are more resistant to changes than their elders, and seem to have adapted to the changing demands and challenges of society. Regardless of the financial and material problems young Europeans may face, they are more satisfied with their lives than older (+30) people are. The most satisfied young people, i.e. those who have ranked their quality of life very high, live in the Nordic countries (Denmark, Finland, Sweden, Norway). The second most happy young people live in Central Europe, and the least happy live in Eastern Europe; however, Southern Europeans do not rank much higher. [22.] As stated by WHO's HBSC-study, in which most of the Member States of the EU27[3] are included, more than 70% of the 15-year-olds scored above the middle of a life satisfaction scale. The most satisfied adolescents live in Finland and the Netherlands and the least satisfied in Estonia and Lithuania. [6.] Females rank their wellbeing lower than males and also report lower life satisfaction and poorer health than males [6, 8].

[3] Includes following countries: Finland, Austria, Belgium, Hungary, Spain, Sweden, Denmark, Latvia, Poland, Czech Republic, Estonia, France, Germany, Lithuania, the United Kingdom (England, Scotland, Wales), Greece, Portugal, Ireland, the Netherlands, Italy, Malta, Slovenia.

Health behaviours tend to cluster [23, 24]. In a study of European university students aged 18–30 it was found that physically active students were more health conscious and less likely to smoke or drink regularly than sedentary young people. Health did not rank very high among the motives for physical activity. Young people considered having fun, leading an exciting life, appearance and socialising more frequently as motives for physical activity than health benefits. [24.] Donovan et al found in their study that greater emphasis on conventional behaviour, i.e. less involvement in problem behaviours like alcohol and drug use and delinquent-type behaviour, and high church attendance, is related to health maintaining behaviours like getting adequate exercise, getting plenty of sleep at night, eating healthy food, and using safety belts. Consequently, unconventional values, problem behaviour and neglect of health maintenance are associated with each other. Young people's lifestyles seem to be shaped by interrelated values and health behaviours. [23.]

There are significant differences in health behaviour between Western (and Central) Europeans and Eastern Europeans. A health behaviour study[4] of university students aged 18–30 found that Eastern Europeans are less aware of the relationship between certain lifestyles, e.g. smoking and exercise and health, than were Western Europeans. Western European students (63%) have healthier lifestyles as, for example, they exercise more, use less alcohol, eat more fruits, use less fat and salt, and wear seatbelts more often than Eastern Europeans (47%). [20.] Surprisingly, Eastern Europeans value health more than do Western Europeans. It is speculated that due to the structural factors of the society Eastern Europeans are less health conscious and depend more on external forces for health maintenance. [25.]

According to a UNICEF study of 21 countries on young people's health and risk behaviours, the most healthily behaving and least risk-taking 15-year-olds in Europe were found in Sweden, Poland and the Netherlands, while the worst health behaviours and highest risk-taking was found in the United Kingdom, Belgium and Hungary. Health behaviours were measured by reported eating habits, physical activity and overweight, and risk-taking by frequency of smoking, alcohol use, cannabis use, sexual activity, use of condom and fertility rate. When health behaviours were examined separately, Poland, the Netherlands and Ireland scored the highest while Greece, Hungary and Finland scored the lowest. Risk behaviours were lowest in Greece, Spain and Italy and highest in United Kingdom, Germany and Finland. [7.]

Gender shapes people's views on health, i.e. their knowledge, actions, understanding and skills in health-related issues [26]. In general, female university students have healthier lifestyles than male students as for instance they eat more fruits and have limited their fat intake. However, males tend to do more exercise. Regardless of the slight increase in physical exercise, some health habits of students have deteriorated in the recent years: more people are smoking and the fruit consumption has declined during 1990–2000. [20.] Females are less likely to be regular smokers, and they also drink less, are more likely to brush their teeth daily, avoid fat, eat fruit and fibre, and are more likely to use seat belts and sunscreen. Furthermore, there are some discrepancies between older and younger students: older students are more likely to smoke regularly, use alcohol, add salt in their food and not eat fruit daily. At the same time, however, older students have some health enhancing behaviours, e.g. they are more likely to avoid fat, eat fibre, use seat belts and sun lotion and brush their teeth regularly. [25.]

Smoking

Smoking among young people has increased over the past decade in Europe [27]. According to a health status survey, of the young people aged 15–24 in the EU27 in 2004, 27% report being daily smokers, with men accounting for 32% and women for 22%. The reported percentage of all smokers (daily and occasional smokers) is 36%. [8.] The Eurobarometer 2004 report indicates similar percentages: 37% of young people aged 15–24 in the EU15 report smoking regularly [28]. According to the HBSC-study, 24% of 15-year-olds report smoking weekly and 18% report daily smoking. [6.]
University students tend to have a different smoking pattern than other young people. As shown by the International Health and Behaviour Survey (IHBS)[5] conducted in years 1999– 2001, the highest rates of smoking among university students aged 17–30 were observed in Southern Europe and the lowest rates in Western Europe. Similar results were found in the European Health and Behaviour Survey (EHBS), which was conducted ten years earlier [29].

Alcohol use

The majority of young people aged 15–24 in the EU27 report having used alcohol in the previous 12 months (72%). Males (76%) report higher percentages than females (67%). The highest percentages for alcohol use for both sexes are reported in Ireland, Slovenia, Lithuania, the United Kingdom and

[4] University students from Austria, Belgium, the Federal republic of Germany, the Netherlands, Switzerland, German Democratic Republic, Hungary and Poland.
[5] EU-countries participating in the study: Belgium, England, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Slovakia, Spain, and from non-EU-countries: Bulgaria, Colombia, Iceland, Japan, Korea, Romania, South Africa, Thailand, Venezuela, the United States.

Sweden (86% to 97%) and the lowest in Romania, Portugal and Cyprus (21% to 56%). [8.]

Young people aged 15–24 use alcohol more at a time than other populations. They are also more likely to drink when not eating, as only one fourth of people aged 15–24 drink mainly when eating. The average age for the first drink among European youth is 14.6 years. However, young people today start drinking alcohol at an earlier age, those aged 15–24 report having had their first drink at the age of 12.3 years. [22.]

According to the European School Survey Project on Alcohol and Other Drugs (ESPAD), in which 35 European countries participated, consumption of beer, wine and spirits vary in Europe. Use of spirits is most prevalent in Greece, Ireland, Malta and the United Kingdom, while beer and wine are most commonly used in the typical wine producing countries of Austria, the Czech Republic, Greece, Italy, Malta and Slovenia. The prevalence of beer consumption is highest in Bulgaria, Denmark, the Netherlands and Poland. [30.]

As shown by a review on studies of young people's views on alcohol, young people find drinking alcohol together with their peers enjoyable. Young people do not commonly mix alcohol with illegal drugs. Most young people think that they are at greater risk of injury after drinking alcohol. Young people also believed to have learned to manage their drinking through experience. [31.]

Drug use

According to the Eurobarometer 2004 survey, 68% of young people aged 15–24 in the EU15 know people who use cannabis, 50% have been offered cannabis and 33% have tried it. Nearly one half of the young people know somebody who uses drugs other than cannabis, 30% have been offered such drugs, 10% have tried them and 3% report regular use. The group most exposed to drugs are men aged 20–24 who are unemployed or manual workers and living in a large town. [28.]

According to the HBSC-study, on average about 20% of 15-year-olds had used cannabis in the previous 12 months. The highest proportions of cannabis users are found in the United Kingdom, Spain, France and the Czech Republic. Conversely, the highest proportions of non-users are found in Malta and Sweden. Cannabis experimentation and use in the previous 12 months are more common in boys than girls. The proportion of heavy users is relatively low overall, less than 3% in the EU. The highest proportions of heavy users are found in the United Kingdom, Spain and Belgium. [6.]

There are some differences in the regular use of drugs among the Member States. In the Eurobarometer 2002 survey it was found that three countries have percentages from 8% to 33% above the average in both cannabis and other drug use: the United Kingdom (19%), Spain (33%) and the Netherlands (8%). Among the countries least affected by drugs were Greece, Sweden, Austria and Portugal. [32.]

Young people think that the acquisition of drugs is relatively easy. The easiest places to acquire drugs are parties, followed by pubs and clubs and a location near the respondent's home. Furthermore, nearly 60% thought that it is easy to acquire drugs near their school or college. [28.]

According to a review on studies of young people's views on drugs, young people not using drugs consider them risky, whereas those using drugs consider them not dangerous. Young people who use cannabis but no other drugs regard cannabis as less risky and the use of other drugs more risky. Actually, many cannabis users consider cannabis use safer than alcohol use, because when drunk on alcohol they perceive themselves to be more likely to 'do stupid things'. Young people who mix alcohol with drugs do not consider it dangerous per se, however, mixing is often avoided because of the perception that it could make the user feel sick. [31.]

Main points

Young people's life sphere and living conditions in Europe

- **In the EU27 there were over 62 million young people aged 15–24 in the year 2006.**
- **The age group accounts for 15% of the total population in the EU27.**
- **Most of young people aged 15–24 are still in education.**
- **Young people in the Member States tend to stay longer than before in their family homes.**
- **The transition into labour market takes place later than before in young people's lives.**
- **The average unemployment rate in the EU for young people under 25 years was relatively high when compared with older populations (+25).**
- **Younger age groups (15–19 years) cite mostly their relatives or partners as their main sources of income. Regular job is cited most often as the main source of income in the older age groups (20–24 years).**
- **Young Europeans rank exercising and meeting with friends as top priorities in their leisure time.**
- **Young people's time spent in sedentary activities has recently grown due to the increasing time spent playing digital games and surfing on the Internet.**
- **In general young people spend a lot of money on cultural and recreational activities.**
- **Young women tend to spend more money on clothes and books than young men, while men tend to spend more money on alcohol and recreation and culture.**

Young people's perceived health and health behaviour

- **Young people report being in good health and well-being and satisfied with their lives.**
- **Health behaviours tend to cluster.**
- **One third of the young people aged 15–24 report daily smoking.**
- **Two thirds of the young people in the EU27 report alcohol use in the previous 12 months.**
- **One third of the young people report having used cannabis.**
- **Young people use alcohol more at a time than other populations.**
- **Young people consider acquiring illegal drugs to be relatively easy.**
- **Gender shapes people's views on health and health behaviours.**

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2. Young people and risk

The concept of risk can be described as consisting of three elements: possibility of a loss, significance of the loss, and uncertainty of the outcome. However, risk assessment tends to be biased since it is usually made from a subjective point of view. [1.] Risk-taking behaviour includes the idea that the risk is voluntary [2, 3]. 'Risk-taking' means that the person has an active role, whereas 'being at risk' implies passivity so that the person is at risk either involuntarily or unconsciously [2]. Risk-taking behaviour and multiple risk-taking behaviours, i.e. engaging in drug and alcohol use, smoking and truancy, are associated with young people's injuries [4-9]. Young people's lifestyles that include risk-taking behaviours are also associated with health complaints [10].

Risk-taking is a contested term and it is not used in a uniform way across the literature. There is an ongoing debate of the causes of risk-taking behaviour and whether it can be used as a homogenous concept [11]. In this report, risk-taking is understood to contain certain behaviours considered to be associated with heightened injury risk. Such behaviours are drinking and driving, alcohol use in general, self-harm, violent behaviour, reckless driving, unsafe sex, cannabis use, and risky sports.

In estimating youth's risk perceptions it is essential to know what kind of skills are needed to assess risks and whether young people possess such ability. It is also important to know what affects youth's ability to judge the risks and whether their risk perceptions influence their decisions. [12, 13.] In this chapter we first take a look at young people's risk-taking behaviour and then analyse the factors influencing such behaviour, as well as young people's perceptions and behavioural willingness of risks and risk-taking.

2.1 Young people and risk-taking behaviour

A risk is present even in the small decisions of our everyday life. An individual necessarily engages in risky behaviour in his or her daily life while exploring, controlling and adapting to the changes of the environment. The environments in which we live our daily lives include numerous uncertainties that may require risky behaviour. [14.] For example, it could be said that a person who needs to cross the street because a car has blocked the pedestrian pavement is taking a risk. However, facing and solving the everyday risks is not what is understood by risk-taking behaviour in this chapter. In this report, risk-taking behaviour refers to a particular behaviour, such as reckless driving, which is considered to involve a heightened risk of injury.

Trimpop (1994) developed a theory of risk motivation that has been cited widely. He argues that risk-taking in itself is a pleasurable and inevitable part of everyday life [14]. According to his theory, individual risk perception and motivation depend on personality and situational factors. Trimpop suggests that risks are taken not only to achieve the possible gains of risk-taking behaviour but also because of the thrill of the behaviour itself; thus it is rather the physiological and psychological rewards that motivate people towards risks than a rational decision to reach a certain goal. Furthermore, people want to show to themselves, and to others, they are able to master difficult life situations. [14.] Therefore, it is not the risk-taking that ought to be reduced but the possible harms associated with risk-taking behaviour. This can be done by educating people towards safer risk-taking [14, 15]. It is, for example, safer to rehearse tricks on rollerblades in one's own backyard than on the street.

Compared to adults, young people are more prone to take risk [16]. Risk-taking behaviours serve certain functions for young people, including experimentation with different behaviours and sensation-seeking. Young people want to break out from the familiar patterns of behaviour and experiment their limits. Risk-taking behaviour also fills their need of thrill and excitement. Reaching autonomy from parents is one of the main developmental tasks of youth. [17.] A heightened sense of independence and peer pressure among young people increase the likelihood of several risk-taking behaviours [16]. Risk-taking behaviour tends to start in the early adolescence, and boys are generally more likely to get involved in risk-taking behaviours than girls. [18.]

Risk-taking behaviour offers a way for young people to challenge their limits as autonomous persons who are deciding for themselves [17]. One reason for young people's involvement in risk-taking behaviours is their need to be perceived as adults. Because drinking, for example, is as common

among adults as among young people, it enables the young to identify themselves both in the company of adults and among their peers. Drinking also offers continuity between past and present, and between family and friends. [17.] The heightened risk-taking in youth is likely to be normative and inevitable. Young people seem to have a heightened need for the stimuli that risk-taking creates. [15.]

Irwin et al [19] describe four psychosocial factors that affect risk-taking behaviour in young people during the biological maturation process: 1) cognitive scope, 2) self-perceptions, 3) perceptions of the social environment and 4) personal values [19]. These four factors constitute an individual's idea about him/herself in relation to others, future aims, and influence of family and peer group. Perceptions of oneself and the social environment together with personal values affect a person's selection of friends, while the cognitive factors and perceptions of oneself affect his/her risk perception. Finally the risk perception and the influence of peers will determine a young person's risk-taking behaviour. [20.]

Risk-taking behaviours tend to cluster. For example, those who take risks in driving are more likely to take other types of risks as well, and young people with high levels of general deviance are more likely to be problem drinkers. [17, 21-23, 24.] Furthermore, young people who engage in drinking and driving and physical fights are more likely to be smokers than other young people [25].

Young people are not particularly interested in the future outcomes of their behaviour, instead, they rather concentrate on the possible here and now outcomes of their conduct [26, 27]. Hence, for example, in the smoking cessation campaigns it is more effective to inform young people about the damage smoking can do to teeth and skin than making them aware of the dangers of lung cancer [26].

It has been indicated that involvement in risky behaviours is always a trade-off between short-term gains and long-term consequences [28]. For example, involvement in risky driving, such as speeding with a car, might seem attractive to young people who want to impress their peers despite the possible consequences such as a car crash or an injury. In a typical situation an individual makes a decision over two competing goals according to his/her personal judgement, and accepts the behaviour that seems to have a more desirable outcome. The decision-making process depends greatly on the capabilities and knowledge of the individual. [28.]

2.2 Factors influencing young people's risk-taking behaviour

2.2.1 Gender in risk-taking behaviour

Risk and risk-management are important to young people's identity forming process. There is also a link between risk, gender and identity. Gender and culture-related 'normal behaviour' affect strongly the way how risk-taking becomes part of a person's identity. Risk appears very differently from a gendered perspective; among young men risk-taking behaviour can be seen as a 'natural' or even essential part of their identity [11, 14, 17, 26, 29].

Males and females have different ways of self-affirmation. While boys tend to affirm themselves in a more visible way, through controlling the environment and others, in girls the control is more invert control over themselves [17]. By adopting risky behaviours young men may be striving for acceptance in a special social setting: the aim of taking risks is to gain status among their peers [29]. For example, if a young man wants to be appreciated among his peers, he has to engage in activities seen as essential to masculine behaviour, which could mean risk-taking and irresponsible behaviour (from adults' point of view). Moreover, in a study of 18–25-year-olds young people it was found that especially older males who are less highly educated are very likely to become involved in risky behaviours [30].

Family, school and society generally impose more responsibility and commitment on girls than on boys. This has a drastic effect on the development of young people and the role they take in the society. Schools can have an important role in the formation of gender identities. For example, girls are more committed to school and they see it as a means of acquiring independence in the future. [17.]

Young males are more likely than young women to concentrate on the possible benefits rather than on the possible costs of risky behaviour [31]. Furthermore, problem behaviour is less expected from young women [29] who are also more likely to be negatively sanctioned if they do involve themselves in it [23]. Women feel more vulnerable to risks and are more disposed to avoid them than men [27, 32]. They also see risky behaviour, alcohol and drug use and sexual behaviour, as less beneficial than do their male counterparts [12].

According to the HBSC-study of 11-, 13- and 15-year-olds adolescents in Lithuania, risk-taking behaviour affects genders differently. Boys who smoke and use alcohol are substantially more at risk of injuries than girls involved in the same activities. Conversely, experiences of premature sex affect girls more strongly than boys; girls with first sexual intercourse at the age of fifteen or before have a

significantly elevated risk of injury. The association between the effect of premature sex and injuries is not equally strong in boys. [33.]

According to an American study of 12th grade students, women who exhibit high-risk driving behaviour deviate more from other women than do high-risk driving men; high-risk driving females are also more likely to be substance users compared to other women. However, high-risk driving behaviour is more common and more normative among men than women. Furthermore, women with equally high levels of substance use to men are still less likely to be involved in traffic crashes than men. [34.]

2.2.2 Personality factors

Risk-taking behaviour can also be seen as a personality trait, as some people are more prone to take risks than others [35-37]. Zuckerman (1979) provided a number of examples for individual differences in risk acceptance which are most likely influenced by personality factors, such as sensation-seeking, extroversion, overconfidence or experience-seeking [36]. In Jessor and Jessor's (1977) problem-behaviour theory, a person's personality is described by variables belonging to three component structures: 1) *motivational-instigation structure*, 2) *personal belief structure* and 3) *personal control structure*. A person's likelihood of problem behaviour is measured with variables belonging to these three component structures. [23.]

The variables in the *motivational-instigation structure* describe the goals of a person and the importance one puts in achieving them. If an individual values a goal highly, he or she is more likely to strive for it. The valuing, for example, of academic achievement is seen as an orientation towards conventional values, as a will to act in accordance with social expectations. However, an individual can have contradictory values that drive a person's behaviour to different directions. More than one behaviour may converge in one individual, such as tobacco use, high-risk sports and sexually transmitted disease. Of the possible contradictory values and behaviours, those are highlighted which the person him/herself values the most. [23.]

The *personal belief structure* represents the beliefs an individual has of him/herself, society and self in relation to society. A person who trusts and believes in the values and functions of the society is less likely to become involved in problem behaviour. The third component *personal control structure* consists of variables describing a person's control against non-normative behaviour. These variables are divided into three different groups: attitudinal tolerance of deviance, religiosity, and discrepancy between the

positive and negative functions of behaviours, such as alcohol and drug use. A person who is generally intolerant of deviant behaviours is not likely to engage in other non-normative behaviours. [23.]

Young people who are likely to get involved in problem behaviour are inclined to fulfil the expectations of friends rather than parents. They also have friends who are supportive of problem behaviour. According to the problem behaviour theory, an individual is prone to problem behaviour if he or she places more value on independence than to academic achievement, does not have high academic expectations, opposes normative values, has a low self-esteem, is not religious, and attaches more importance to the positive function of deviant behaviour. [23.]

According to an American study of young people aged 13–24, diverse risky behaviours, such as educational under-achievement, delinquent behaviour, violent acts, substance use and sexual behaviour, can be modelled by higher order personality factors, e.g. negativity, avoidant style of coping with negative emotions, sensation-seeking and impulsivity. The results of the study indicate that the core personality factors underlying adolescent risky behaviour are dysfunctional styles of regulating emotions and emotionally driven behaviours. [37.]

Aggression and sensation-seeking

An aggressive person is more likely to take risks than a less aggressive one [38]. Aggression is associated with sensation-seeking, impulsivity and a focus on the immediate consequences of behaviour [39]. Aggressive and highly impulsive persons are more likely to choose behaviour with quick short-term benefits than are other people, and impulsive persons pay less attention to longer-term effects of their actions [37, 39]. Persons in negative mood states also tend to favour the short-term effects, e.g. substance use over the long-term effects of substance dependence [37].

Aggressive behaviour cannot be explained only by environmental and social factors, biology affects it too [40]. In particular, aggressiveness associated with violence, insensitivity and indifference towards other people has been proven to be a heritable trait. An individual's biological heritage can affect the choice of leisure time activities and friends. For example, the fact that anti-social persons tend to have anti-social friends could be partly explained by their willingness to be around 'like-minded people'; thus their antisocial behaviour is probably not caused by the membership of the group but they were anti-social already before becoming a group member. Belonging to a group might increase their criminal activity, for which, however, they might have had the motivation even before joining the group. [40.]

Sensation-seekers are attracted to situations likely to elicit an aggressive response [39]. In a study of young drivers' sensation-seeking and risky driving, it was found that high sensation-seekers were significantly more likely to be risky and aggressive drivers, i.e. to speed, not wear seat belts, drink frequently, drive after drinking, and perceive a low-risk of detection for impaired driving as compared to low sensation-seekers [41]. The age, gender or annual kilometres travelled did not differ significantly in high and low sensation-seekers. The link between high sensation-seeking and risky driving was equally strong for women and men. High sensation-seekers were more likely to report a traffic violation within the past two years; however, there was no difference in crash involvement. [41.]

2.2.3 Peer influence

Risky activities, especially during youth, are not individual activities, since young people are more susceptible to peer pressure than adults [15, 31]. As a reference group, the peer group has a notable effect on young people's attitudes and behaviour, and is very essential for a young person's identity [42]. Peer groups often create their own values and habits, which are very often opposite to those of adults. In a peer group, young people often search for excitement. For example, in the context of traffic, this could mean dangerous driving and, in order to impress, driving under the influence of alcohol [42] or following risky road manners as a pedestrian [43].

Peers tend to encourage risk-taking behaviour [11]. Most risk behaviours are conducted together with other friends, e.g. drinking, risky driving and sexual risk-taking [15, 31, 44]. Through taking risks young people affirm themselves in a group by showing others and themselves that they can manage the risky situations and are part of the peer group. Young people's risk-taking behaviour can be seen as one form of bonding ritual; belongingness to a group is manifested in participation in a shared behaviour. Young people who are involved in the risk behaviours their peer group exercises also have the most secure place in it. Therefore, it is important for the adolescent to feel part of the group, be involved in all the activities the group performs, and appear alike, otherwise he or she risks the possibility of feeling like an outsider and lacking the necessary identity affirmation. [17.] However, in certain situations peers can protect themselves from risk-taking behaviour, for example from engaging in drunk driving [11].

Friends are important in initiating different kinds of behaviours, e.g. substance use or misuse, promiscuous sexual behaviour and dangerous driving, and in sustaining them. Young people are very likely to adopt anti-social or unconventional behaviours of their reference group. [17, 30, 33.]

In an Italian study of adolescents aged 14–19, different behaviours that can pose risks to physical, psychological or social well-being were examined. It was found that the time spent with peers increases adolescents' likelihood of becoming involved in risky behaviours. It is very typical of adolescents to have a 'false consensus', meaning that they overestimate the number of people involved in certain risk-taking behaviours. [17.]

Young people inclined to exhibit delinquent and risky behaviours are likely to search for companionship amongst the like-minded peers [40]. Young people cannot always decide freely which social group they belong to. For example, an aggressive and asocial adolescent has no other option than to look for the company of other aggressive and asocial peers, even though he/she would much prefer the company of other adolescents [40, 44]. By belonging to an aggressive and asocial subgroup an adolescent increases his/her likelihood to take part in criminal acts. This is part of the so called socialisation process, during which the members of a certain subgroup gradually begin to resemble each other. [44.]

2.2.4 Perceptions and rationality

In general, it is the different cultural and social factors that influence the acceptance of risk [45, 46]. A person's responses to hazards are mediated via the social reality in which he/she lives, i.e. family, friends and work colleagues [45]. In addition, risk perception and risk assessment are influenced by the individual's past experiences, motivations, present mood and emotions. For example, when a driver is overtaking a car, several factors need to be taken into account: other drivers, relative speeds and distances of other cars, oncoming traffic and other traffic that might be hidden from the view. If an individual is in a more aggressive mood than usual, or in a hurry, he/she might be more eager to overtake other cars than he/she normally would. [38.]

People's risk-related decision-making process is bound to be biased and subjective [38]. However, five dimensions affecting individual decision-making on risk have been identified: 1) physical, 2) financial, 3) psychological, 4) functional, and 5) political/career. The physical dimension consists of speculation about whether a person will be harmed by the action, and the financial about whether a person will gain or lose from committing an act. The psychological dimension involves ego considerations, e.g. 'whether a person's self-esteem will be improved or worsened by the action', and social considerations, e.g. 'whether a person's social status will increase or decrease in the situation'. The functional dimension consists of speculation about whether an individual can achieve the set goal by the action and then benefit from it. The political and career dimension consists of considerations as to whether one's career prospects will improve by taking the action. [38.]

Adults have a tendency to exaggerate youth problems. For example, when young people's use of alcohol and drugs was decreasing in Finland, the adult population believed it to be increasing. [47.] The discourse on youth and their problems is normally created from the adult point of view and therefore it does not describe well what young people themselves consider important [48].

Young people's engagement in risky behaviour depends on their perception of how dangerous the situation is, or more specifically, on their perception of how dangerous that behaviour would be in a given situation [11]. Young people might perceive risky behaviour differently from adults. Even though adolescents consider the risks before indulging in risky behaviours, such risks appear to play only a secondary role in their risk assessment. [13, 49.] Several studies have demonstrated that those engaging in risk-taking behaviours are more likely to emphasise the positive consequences, e.g. relaxation, excitement, fun, sexual facilitation and social enhancement over the negative consequences such as injuries and social disapproval [13, 24, 50, 51].

It is not necessarily so that young people are ignorant of the risks but rather that they do not perceive the possibility of an injury in their everyday practises [52, 53]. Young people do perceive themselves as vulnerable to risks. In fact risk perception decreases with age and the actual competence in identifying and judging the risks grows with age. [11, 12, 13, 53.]

According to a British study of 15–16-year-olds, risky behaviour is most commonly related to illegal drug use. Among the 17–19-year-olds, traffic-related hazards scored the highest. In both age groups, girls were more likely to give multiple hazards, related to alcohol use, illegal drugs and tobacco use, whereas boys gave more examples of misbehaviour, road and outdoor safety. When asked what specifically makes illegal drugs dangerous, girls were more likely to relate the hazard to premature death, whereas boys were more likely to give a range of possible outcomes. [27.]

In an American study of 17–20-year-olds, the perceived personal benefits of risky behaviour were a more important motivation for risk-taking than the perceived personal risks. Overall, both perceived benefits and perceived risks were found to be important determinants for adolescents' behavioural intentions. [49.] In contrast, another study suggested that perceived risks affect adolescent risk-taking more than perceived benefits, and further, that sensation-seeking is a more important predictor of risk frequency than are perceived risks and benefits [54].

Behavioural willingness

Reyna et al (2006) conclude that even if perception of risks is important in understanding risk-taking behaviour, *behavioural willingness* can better indicate the susceptibility of young people's engaging in risk-taking. This is because young people do riskier things that they actually intend or expect to do. [13.]

According to the literature review of Reyna and Farley (2006) young people spend more time pondering between the possible actions [13]. Most adults base their decisions on categorical ideas of some actions being beneficial and others being harmful. Adults tend to associate most risk-taking behaviours with great risks, which prevents them from proceeding their thinking towards actually calculating the odds. Young people in turn take their time to decide whether the prospective positive outcomes outweigh the negative outcomes. The claim of Reyna et al is that during transition into adulthood young people become more intuitive, automatic and 'irrational', meaning that they learn the culturally accepted automatic responses to situations. These automatic responses make adults behave more carefully and avoid injuries. Young people, on the other hand, make more 'cold calculations' and might end adopting some risk-taking behaviours because the benefits, i.e. feeling of connection with the peer group and immediate pleasure seem to outweigh the risks. [13.]

Compared to adults, young people already feel themselves more vulnerable to risks [12, 13, 53] and spend more time in pondering between the risks and benefits. Therefore interventions that stress the importance of more accurate risk perceptions are likely to be ineffective [13].

2.2.5 Contextual factors for risk-taking behaviour

A supportive social environment, as for instance safe and encouraging home and school settings, protect adolescents from engaging in risk-taking behaviours [4, 9, 17, 18, 23, 55]. Family and school can serve as meaningful protectors both directly and indirectly. Family members can be representative role models and encourage young people to act in a positive way. Family attitudes towards smoking, alcohol use and drugs affect strongly young people's own attitudes and behaviours. Similarly, teachers and peers can serve as positive role models for this age group. [17.]

According to young people themselves, the legality of risk-taking behaviours does not matter. In fact, they would take part in risk-taking behaviours even when these are illegal. However, experiencing critical events, such as injury to oneself or to a close person, can reduce risk-taking behaviour. [11.]

Time spent in public spaces doing nothing poses a potential risk for problem behaviours. [17.] High-risk young people tend to be more unsatisfied with their lives, [56], have lower self-esteem, less confidence in their academic capabilities, less ability to confront the difficulties of everyday life, and have more pessimistic future expectations than their peers. In addition, these young people are very often involved in many risky behaviours at the same time. [17.]

Young people who devote their time to studying and organised, productive activities are less likely to engage in risk-taking behaviours [17]. Moreover, young people with conventional values are less likely to be involved in risky behaviours than those with unconventional values [23]. Young people striving for social desirability also report low levels of risky behaviours [30]. In a study of North-American youth aged 12–22 years, those with fundamental religious backgrounds were more likely to behave conventionally: they appreciated academic achievement, were less critical of the society, had more conventional attitudes about sexual affairs, were less involved with marijuana use, and less likely to highly value independence [23].

Main points

Risk-taking:

- **is defined as a voluntary exposure to risk and danger.**
- **is also a pleasurable and inevitable part of everyday life.**
- **tends to cluster.**
- **is always a trade-off between short-term gains and potential long-term consequences.**

- **Risk-taking is a contested term and not used in a uniform way across the literature. In this report risk-taking is understood to contain certain behaviours, e.g. violent behaviour, reckless driving, and use of alcohol and drugs, which can be considered to be associated with a heightened injury risk.**
- **Young people's risk-taking behaviours are associated with more injuries.**
- **Competence in identifying and judging the risks grows with age.**
- **Men are more likely than women to concentrate on the possible benefits rather than the possible costs of risky behaviour.**
- **The stronger the orientation towards peer groups is, the more likely young people are to engage in risk-taking behaviours.**
- **Risk perception is defined by the social reality young people live in.**
- **Young people often do riskier things that they intend or expect to do. Therefore behavioural willingness might explain young people's engagement in risky behaviours better than risk perceptions.**

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3. Injuries among young people

In this report the concept of injury includes both unintentional and intentional injuries. Unintentional injury is a physical harm caused unintentionally by external factors. [1.] Unintentional injuries are subdivided by their causal mechanism. Transport, falls and poisonings are the most common causes for unintentional injury deaths among Europeans. [2.] Intentional injuries are deliberately inflicted and include self-inflicted injuries, interpersonal and collective violence. Self-inflicted injuries are caused by the person him/herself, interpersonal violence includes injuries caused intentionally by another person, and injuries from collective violence are for example due to war, civil insurrection and acts of terrorism. [2.]

Injuries are the leading cause of death among young people aged 15–24 in Europe but also across nearly every region of the world [3]. In Europe, external causes of death, i.e. unintentional and intentional injuries, account for two thirds of young people's causes of death [1].

Risk-taking behaviour is an overarching concept that explains at least partly the high toll of injuries among youth. Currently it is discussed whether to concentrate the prevention campaigns and measures on risk-taking behaviour in general or rather make more fine grained interventions targeting specific risk groups. A large review by Thomas et al [4] on studies related to injuries and sport, transport, drugs and alcohol among young people states that *"while there is a large literature on a 'culture of risk-taking' among young people, the evidence to support the view that this translates into significant numbers of injuries is limited."* [4, page 3]. Nevertheless, studies on risk-taking behaviour and multiple risk-taking behaviours, i.e. engaging in drug and alcohol use, smoking and truancy, have found that young people's injuries and risk-taking are associated [5-10]. Risk-taking behaviour can be considered an important factor explaining the increased injury risk among youth and adolescents, but evidently there is still a need for further, more systematic studies on the association between injuries and risk-taking.

In this chapter, an extensive overview on the impact of young people's injuries is presented. First, a very general introduction with statistics to young people's injuries in Europe is given. In later sections, different injuries are introduced separately including available statistical information. The chapter is divided into two larger subsections: unintentional injuries (section 3.1) and intentional injuries (section 3.2). In section 3.1 a general outlook on young people's unintentional injuries is taken. The chapter comprises presentation of traffic, work, sport and other home and leisure-time injuries. In section 3.2 different forms of violence, i.e. interpersonal, intimate and sexual violence, are presented briefly. The

section on self-directed violence consists of general presentation of young people's self-harm and suicides.

Young people's injuries in Europe

The mortality rates for young people aged 15–24 are low in the EU27. In contrast to the causes of death in the general population, young people die mostly from injuries, i.e. external causes of death, consisting of 1) varying types of unintentional injuries e.g. due to transport or poisoning, 2) suicide and intentional self-harm, and 3) homicide or assault (Figure I1, Table I1–I2). Every year over 20 000 young people die due to injuries in the EU27. Unintentional injuries (44%), suicides (14%), homicides (2%) and other external causes of death (4%) represent 64% of all deaths among the 15–24-year-olds. The most common causes of death for the entire EU27 population are other than external causes of death (96%), e.g. different kind of diseases. [1.]

Non-fatal injuries can severely harm the person and restrict his or her everyday activities. According to WHO, injuries are the leading cause of the burden of disease for under 30 year-olds when measured with disability adjusted life years (DALYs), years of life lost to disability, or premature death. Those aged 15–29 have the highest proportion of DALYs lost due to injuries, their share is more than one third of the DALYs lost from all injuries. [11.]

Many of the non-fatal injuries result in hospitalisation, treatment in emergency departments, or treatment outside hospitals [12]. In an American study of adolescents aged 13–19 it was estimated that for every injury death there are 1 100 emergency room visits and 41 hospitalisations [13]. Injuries place a burden on national economies; the per capita cost of an injury hospital admission has been calculated to be 30 Euros in the former EU15 countries [14].

More injuries happen to males than to females; males' injuries represent three out of four of all injury deaths and 77% of years of lost life to disability or premature death [11]. In the EU27, 15–24-year-olds males represent an even higher proportion of injurious deaths, their injurious deaths represent 80% of all the death cases [1]. It is important to understand the context of gender and how it shapes young people's lives in relation to injuries and risk-taking. For example, men aged 16–24 are eight times more likely than women to have an alcohol-related road injury. It is stated that young men are almost expected to engage in risk-taking behaviour in traffic, in this respect risk-taking is considered 'natural' for young men [4].

	Fatal injuries in % of all causes of death by age group in EU-27							
	All ages	**< 1 year***	**1 - 4 years***	**5 - 14 years***	**15 - 24 years**	**25 - 44 years**	**45 - 64 years**	**65+**
All countries	5%	3%	27%	37%	65%	34%	8%	3%
Minimum	3.5% (UK)	0.7% (DK)	16.8% (IT)	29.1% (IE)	39.3% (CY)	26.2% (BG)	5.4% (UK)	1.4% (BG, EL)
Maximum	12.6% (LT)	12.0% (EE)	51.9% (LV)	65.7% (CY)	77.4% (EE)	51.6% (LT)	21.2% (LT)	5.0% (FR)

Table I1. Injury deaths (%) of all causes of death by age group in the EU27.
Source: Angermann A et al (2007): Injuries in the European Union. Summary 2003–2005, KfV, Kuratorium für Verkehrssicherheit: Vienna [14].

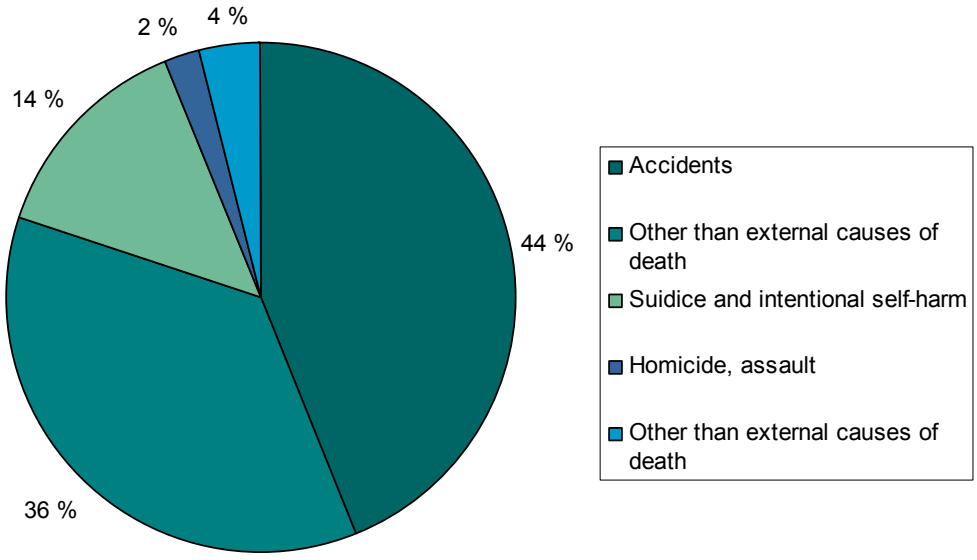

Figure I1. Mortality (%) among 15–24-year-olds in the EU27 in 2005.
Source: Eurostat, population and social conditions [1].

Rank	All ages		< 1 year		1 - 4 years		5 - 14 years	
	Cause ICD-10 Code Absolute number	Fatalities per 100 000 % on all causes of death	Cause ICD-10 Code Absolute number	% on all causes of death	Cause ICD-10 Code Absolute number	% on all causes of death	Cause ICD-10 Code Absolute number	% on all causes of death
1	Diseases of the circulatory system I00-I99 n=2 113 088	431 43%	Certain conditions originating in the perinatal period P00-P96 n=13 046	48%	External causes of injury and poisoning V01-Y89 n=1 508	27%	External causes of injury and poisoning V01-Y89 n=3 186	37%
2	Neoplasms C00-D48 n= 1 244 590	254 25%	Congenital malformations and chromosomal abnormalities Q00-Q99 n=7 121	26%	Congenital malformations and chromosomal abnormalities Q00-Q99 n=862	15%	Neoplasms C00-D48 n=1 834	22%
3	Diseases of the respiratory system J00-J99 n=368 198	75 8%	Symptoms, signs, abnormal findings, ill-defined causes R00-R99 n=2 007	7%	Neoplasms C00-D48 n=801	14%	Diseases of the nervous system and the sense organs G00-H95 n=877	10%
4	External causes of injury and poisoning V01-Y89 n= 257 252	53 5%	Diseases of the respiratory system J00-J99 n=1 722	6%	Diseases of the nervous system and the sense organs G00-H95 n=579	10%	Congenital malformations and chromosomal abnormalities Q00-Q99 n=562	7%
5	Diseases of the digestive system K00-K93 n=226 023	46 5%	External causes of injury and poisoning V01-Y89 n=782	3%	Diseases of the respiratory system J00-J99 n=471	8%	Diseases of the circulatory system I00-I99 n=474	6%
6	Symptoms, signs, abnormal findings, ill-defined causes R00-R99 n=163 012	33 3%	Diseases of the nervous system and the sense organs G00-H95 n=729	3%	Infectious and parasitic diseases A00-B99 n=328	6%	Diseases of the respiratory system J00-J99 n=405	5%
7	Endocrine, nutritional and metabolic diseases E00-E90 n=130 731	27 3%	Infectious and parasitic diseases A00-B99 n=615	2%	Symptoms, signs, abnormal findings, ill-defined causes R00-R99 n=297	5%	Infectious and parasitic diseases A00-B99 n=355	4%
	All causes of death n=4 913 837	1003 100%	All causes of death n=27 292		All causes of death n=5 620		All causes of death n=8 53[illegible]	

Rank	15 - 24 years		25 - 44 years		45 - 64 years		65 + years	
	Cause ICD-10 Code Absolute number	% on all causes of death	Cause ICD-10 Code Absolute number	% on all causes of death	Cause ICD-10 Code Absolute number	% on all causes of death	Cause ICD-10 Code Absolute number	% on all causes of death
1	External causes of injury and poisoning V01-Y89 n=21 938	65%	External causes of injury and poisoning V01-Y89 n=59 057	34%	Neoplasms C00-D48 n=312 824	41%	Diseases of the circulatory system I00-I99 n=1 862 718	48%
2	Neoplasms C00-D48 n=3 218	10%	Neoplasms C00-D48 n=37 044	21%	Diseases of the circulatory system I00-I99 n=220 204	29%	Neoplasms C00-D48 n=888 655	23%
3	Diseases of the circulatory system I00-I99 n=1 835	6%	Diseases of the circulatory system I00-I99 n=27 204	16%	External causes of injury and poisoning V01-Y89 n=63 900	8%	Diseases of the respiratory system J00-J99 n=329 196	8%
4	Diseases of the nervous system and the sense organs G00-H95 n=1 480	4%	Diseases of the digestive system K00-K93 n=12 910	7%	Diseases of the digestive system K00-K93 n=60 074	8%	Diseases of the digestive system K00-K93 n=152 765	4%
5	Symptoms, signs, abnormal findings, ill-defined causes R00-R99 n=1 422	4%	Symptoms, signs, abnormal findings, ill-defined causes R00-R99 n=8 874	5%	Diseases of the respiratory system J00-J99 n=30 758	4%	Symptoms, signs, abnormal findings, ill-defined causes R00-R99 n=126 927	3%
6	Diseases of the respiratory system J00-J99 n=789	2%	Infectious and parasitic diseases A00-B99 n=6 990	4%	Symptoms, signs, abnormal findings, ill-defined causes R00-R99 n=23 211	3%	Endocrine, nutritional and metabolic diseases E00-E90 n=111 880	3%
7	Congenital malformations and chromosomal abnormalities Q00-Q99 n=631	2%	Diseases of the nervous system and the sense organs G00-H95 n=5015	3%	Endocrine, nutritional and metabolic diseases E00-E90 n=15 129	2%	External causes of injury and poisoning V01-Y89 n=106 866	3%
	All causes of death n=33 669		All causes of death n=173 099		All causes of death n=773 109		All causes of death n=3 892 463	

Table I2. Leading causes of death by age group in the EU27 in 2003–2005.
Source: Angermann A et al (2007): Injuries in the European Union. Summary 2003–2005, KfV, Kuratorium für Verkehrssicherheit: Vienna [14].

Injury types

Injuries vary according to the many surroundings and settings young people are involved in, including school, home, road, work, sports and different leisure time activities [5, 15, 16, 17]. The most common injury setting for fatal injuries is the road and for non-fatal the sporting areas [1, 11, 15, 17].

Young people's mortality from transport injuries is considerably higher than that of the whole EU27 population (17 vs. 10/100 000) [1]. In working environment, young people tend to have proportionally more non-fatal injuries but less fatal injuries than other workers [18]. Inexperience and higher risk-taking in traffic and work surroundings at least partly explain young people's high injury toll [19-21].

IDB[6] collects its data from hospital discharge registers in seven EU-countries: Austria, Denmark, France, the Netherlands, Portugal, Sweden and the United Kingdom. Thus the data are not representative of the entire EU27 and the national morbidity data are also based on estimates. However, IDB is unique for its European-wide coverage and details, including mechanism of the accident, activity of the victim, occurrence and other factors related to the injuries. The data can provide some illustration of the European injury morbidity and give indications for cross-country comparisons.

According to IDB, sports and leisure time injuries are more common in young people aged 15–24 while injuries at home are more prevailing in the other populations. Sports injuries and injuries in general are more common among the 15–19-year-olds while the 20–24-yearolds have more injuries at home. [15.]

Injury mortality

In 2005, young people's injury mortality was 32/100 000 (Figure I2) compared to 50/100 000 in the whole EU27 population. When compared to other populations, the causes of injurious deaths are different among youth. Young people have higher mortality for transport injuries (17/100 000 vs. 10/100 000), but lower for falls (0,8/100 000 vs. 10/100 000), poisonings (1,3/100 000 vs. 2.3/100 000), suicides (7/100 000 vs. 12/100 000) and homicides and assaults (0,95/100 000 vs. 1,13/100 000) as compared with the population at large. [1.]

In the EU27 in 2005, youth injury mortality from external causes was high in Lithuania (81/100 000), Estonia (72/100 000) and Latvia (66/100 000) (Figure I3). The Netherlands (17/100 000), Germany (24/100 000) and the United Kingdom (26/100 000) have low injury mortality rates from external causes. [1.]

[6] IDB was set up by DG SANCO under the Injury Prevention Programme in 1999. The aim is to provide central access to the data collected in the Member States under the European Home and Leisure Accident Surveillance System (EHLASS).

Injury mortality from external causes decreased by 19% among 15–24-year-olds during years 1999–2005 in the EU27, from 40 to 32/100 000 (Figure I2). At the same time, mortality from other than external causes decreased by one fifth. The rates declined for falls (26%), homicides and assaults (28%) and transport injuries (21%). However, injury mortality is not decreasing steadily in all the countries in the EU27, and there are significant differences between the countries. [1.]

In years 1999–2005 mortality from transport injuries was reduced by 21% in the EU27, however, it increased in Hungary and the United Kingdom. Mortality from fall injuries decreased by 26% in the EU27, but increased remarkably in Finland, Latvia and Spain. Mortality by poisonings decreased by 7% in the EU27 but increased significantly in Germany, the Netherlands, Estonia, Greece and Hungary. Mortality from suicide was reduced by 14% in the EU27 while it increased notably in Portugal. Mortality by homicides and assaults decreased in the EU27 by 28%, nevertheless it increased in Slovenia, Slovakia and Portugal. [1.]

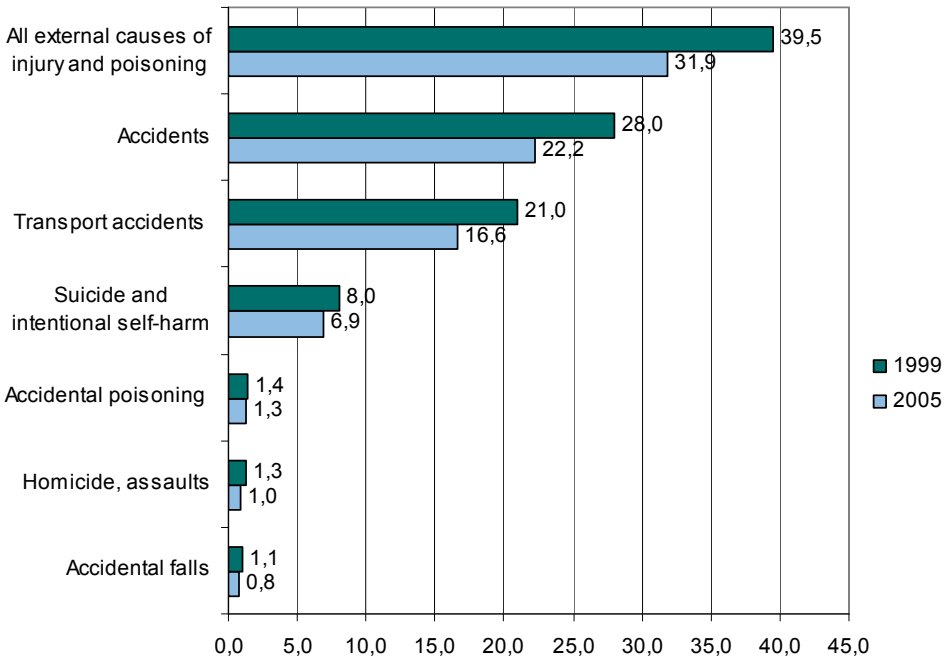

Figure I2. Injury mortality by external causes (1/100 000) among 15–24-year-olds in the EU27 in 1999 and 2005.
Source: Eurostat, population and social conditions [1].

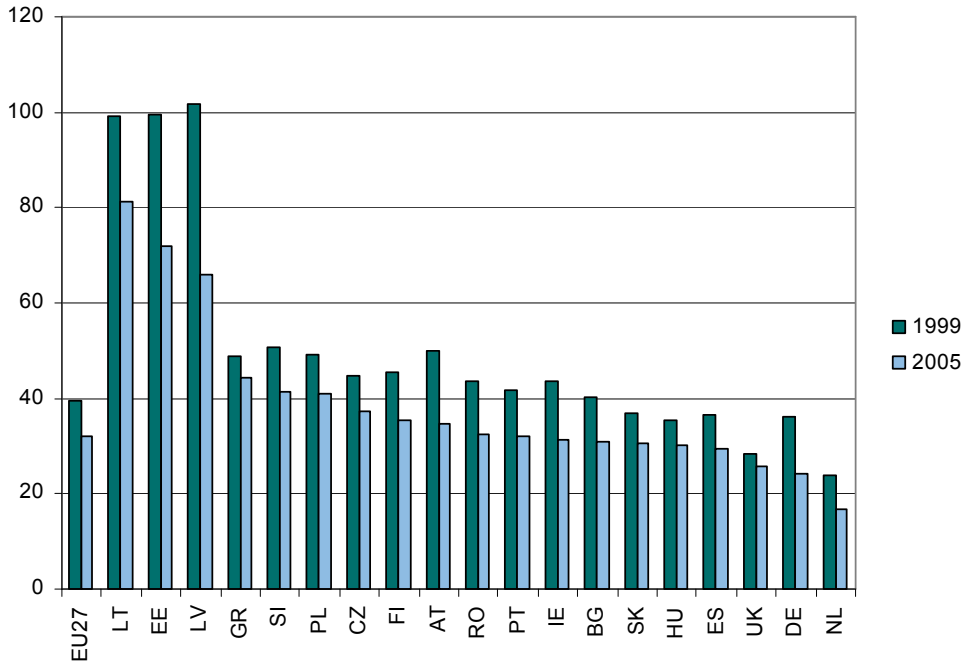

Figure I3. Total mortality (1/100 000) due to external causes among 15–24-year-olds in the EU27 and in some EU-countries in 1999 and 2005.
Source: Eurostat, population and social conditions [1].

Injury morbidity

With the exception of the mortality data, no representative data exist for the entire EU27, and therefore the progress of non-fatal injuries is harder to follow than that of fatal ones. In the Eurostat database, hospital discharge data are available from some of the EU27 countries for some of the years 2000–2005. Data were available from 17 countries, but not for every year from each country. Thus the morbidity data are not representative for the entire EU27, however, it can give some indication of the morbidity situation.

According to Eurostat figures for 2000–2005, injury morbidity of 15–24-year-olds seems to be declining in most of those countries for which the data was available. Nevertheless, injury morbidity seems to be increasing in the Czech Republic and the United Kingdom among 15–24-year-olds and in the Netherlands and Finland among 20–24-year-olds[7]. [1.]

[7] In the Czech Republic morbidity from injury, poisoning and certain other consequences of external causes for 15–19-year-olds was 2019/100 000 in 2002 and 2099/100 000 in 2005, and for 20–24-year-olds it was 1770/100 000 in 2002 and 1780/100 000 in 2005. In the UK injury morbidity for 15–19-year-olds was 1245/100 000 in 2002 and 1288 /100 000 in 2003 and for 20–24-year-olds it was 1245/100 000 in 2002 and 1249/100 000 in 2003. In the Netherlands injury morbidity for 15–19-year-olds was 704/100 000 in 2003 and 677/100 000 in 2005 and for 20–24-year-olds it was 594/100 in 2003 and 600/100 000 in 2005.

In the countries where injury morbidity seemed to be rising during the time period of 2000–2005, it did so more in females. In the age group of 15–19-year-olds, morbidity rose slightly in the Czech Republic, Denmark and the United Kingdom, while for males in the same age group morbidity rose very slightly in the Czech Republic, Slovenia and the United Kingdom. Injury morbidity of 20–24-year-olds females rose slightly in the Czech Republic, the Netherlands and Finland, while that of 20–24-year-olds males rose very slightly in Finland and the United Kingdom. [1.]

Differences in injuries between and within countries in Europe

There are considerable differences in injury mortality and morbidity between the countries in Europe [3, 11, 14]. According to WHO, nowhere in the world are the differences in injury mortality and morbidity between low- and middle-income countries and high-income countries and between social classes within countries as big as in Europe [11]. In general, there are much more injuries in Eastern European countries. For example in Latvia, Lithuania, and Estonia, injury morbidity and mortality are high, while in Western European countries such as Germany and the Netherlands injury mortality is comparably low. Due to the economic and political change since the 1990s these countries are experiencing more unemployment, increasing income inequalities, increasing traffic, reduced restrictions on alcohol use and less social support. The rapid change these societies are experiencing is associated with increasing violence and injury rates. Those especially at risk are the children, elderly people, males, economically deprived, and people with less education or with fewer social resources. [11.]

In general, people with low socio-economic status (SES) are at higher risk for injury than wealthier people [11]. Poor people live in more hazardous environments; they often lack access to social capital, and suffer from social exclusion. Moreover, people with low SES often have less access to high-quality health care and rehabilitative services. Injuries are costly not only because of the costs of health care but also for the loss of earning capacity. [2.]

Reviews on the associations between young people's injuries and SES mention low SES and higher rates of fatalities as being related to unintentional injuries [4]. An association was found between low SES and fatal injuries due to fire, motor vehicles and other unintentional injuries. However, there was inconsistency between fatal and non-fatal injuries, and some studies found that non-fatal injuries and higher SES are associated. An explanation for this is that minor injuries may be underreported by those with low SES while fatal injuries are more accurately reported. [4.]

It has also been suggested that in certain dimensions of health, especially in non-fatal injuries, socio-economic differences are equalised when shifting from childhood to youth. Patrick West [23] states that "*within theoretical perspective that juxtaposes class and age (youth) based influences, it is suggested that this could occur when effects associated with the secondary (high) school, the peer group and youth culture cut across those of the family, home background and neighbourhood in such a way as to reduce or remove class differences in health*" [23, page 833]. There are less socio-economic differences in injury mortality in early youth, approximately between ages 12–19, when compared to younger or older populations. The change has been suggested to be due to the change of environment which already takes place when children enter primary school, but more notably in secondary school, where youth start to spend more time out of their parental homes in school and together with their friends. Along with the diminishing parental influence, the influence of school, peers and youth culture grows. Consequently, the injury risk at home is reduced and the injury risk in other environments grows. [23.]

Socio-economic differences start to grow again in later youth and early adulthood [23]. In post-school period, during the process of identity formation, differentiation rather than equalisation is promoted. Learned health behaviours are maintained and further developed. This is described as 'health selection' "*in which adult class position is in some degree determined by prior health ('direct' selection) or health potential ('indirect' selection) via patterns of social mobility, the 'more healthy' moving upwards, the 'less healthy' downwards* " [23, pages 852].

Unintentional and intentional injuries share common economic, social, political and environmental factors. They also have common risk factors, e.g. alcohol and drug use affect disproportionately the vulnerable groups of the society. [24.]

Alcohol is a common risk factor for both unintentional and intentional injuries [11]. It is estimated that 40–60% of all injuries are attributed to alcohol consumption [24]. Especially young men are at risk. In a comprehensive study of young people's alcohol consumption, patterns and mortality, it was found that alcohol consumption is related to unintentional deaths among 15–29-year-olds men. A similar relationship was not found with respect to female drinking and injury deaths, although it was assumed that alcohol plays a similar role in women's injury-related deaths. [25.]

Main points

- **Injuries are the leading cause of death among young people aged 15–24 in the EU27.**
- **Unintentional and intentional injuries accounted for 64% of young people's deaths in 2005.**
- **More injuries happen to men than women, men's injuries constitute three out of four injury deaths and 77% of years of lost life to disability or premature death.**
- **Injuries vary according to surroundings and settings young people are involved in, e.g. home, road, work and sports.**
- **Unintentional and intentional injuries share common economic, social, political and environmental factors.**
- **Especially in Europe, there is a significant inequality in injury mortality between low- and middle-income and high-income countries. In general, injury mortality is higher in Eastern European countries.**
- **Alcohol is a significant risk factor for young people's injuries.**

3.1 Unintentional injuries

Unintentional injuries represent 44% of the causes of death among young people aged 15–24 years [1], with transport injuries (74%) being the most common cause. Poisoning injuries (6%), falls (4%) and other unintentional injuries (16%) constitute the remaining 26% of unintentional causes of death (Figure I4). More young men die due to unintentional injuries than women; men's injuries account for more than half of all unintentional injuries. [1.]

Young people's mortality from unintentional injuries has decreased by 21% from year 1999 (28/100 000) to 2005 (22/100 000). Also the proportion of unintentional injuries as a death cause has slightly diminished within this time period (from 46% to 44%). Mortality from unintentional injuries was highest in Lithuania, Estonia and Latvia and lowest in the Netherlands, the United Kingdom and Germany in 2005 (Figure I5). [1.]

Home and leisure time injuries among youth include all unintentional injuries except those due to road and work. A map picture of fatal home and leisure time injuries gives good illustration of the injury situation in Europe (Figure I6). As for all unintentional injuries, mortality for home and leisure time injuries is highest in Eastern European countries and Greece. However, also Luxemburg, Belgium, Cyprus, Finland, Spain and Sweden show relatively high figures.

According to Eurostat's statistics of year 2005, the incidence rate for fatal unintentional injuries is higher for the older (20–24 years) than for the younger age group (15–19 years). However, the proportion of unintentional injuries as a cause of death is slightly higher (46% vs. 45%) for those aged 15–19 while the proportion of suicides and self-harm (12% vs. 15%) is higher for the 20–24-year-olds. [1.] Gender differences are prevailing; globally speaking, males sustain more both fatal and non-fatal unintentional injuries than females [1, 5]. The absolute number of unintentional deaths among the 15–24 year-olds in the EU27 in 2005 was 2765 (20%) for females and 11 176 (80%) for males [1].

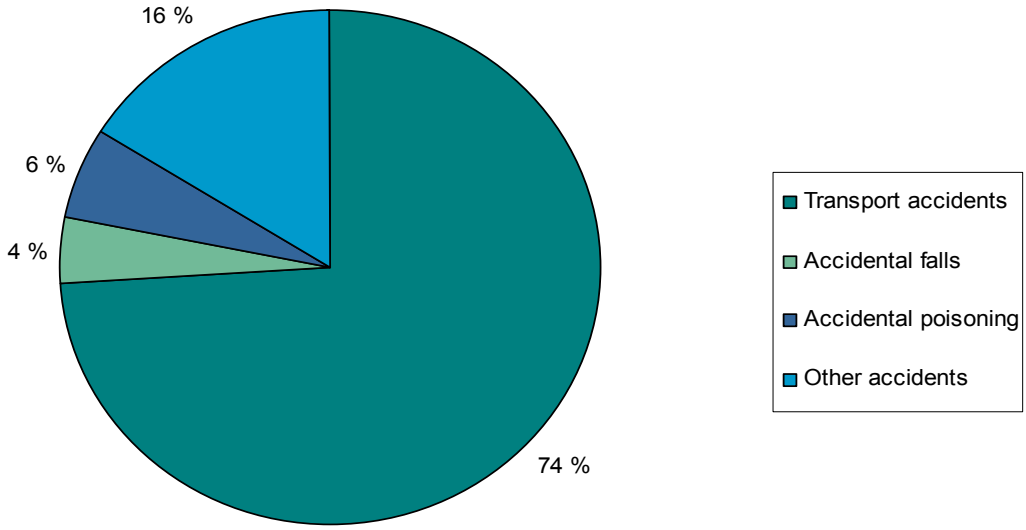

Figure I4. Mortality (%) by unintentional injuries among 15–24-year-olds in the EU27 in 2005.
Source: Eurostat, population and social conditions [1].

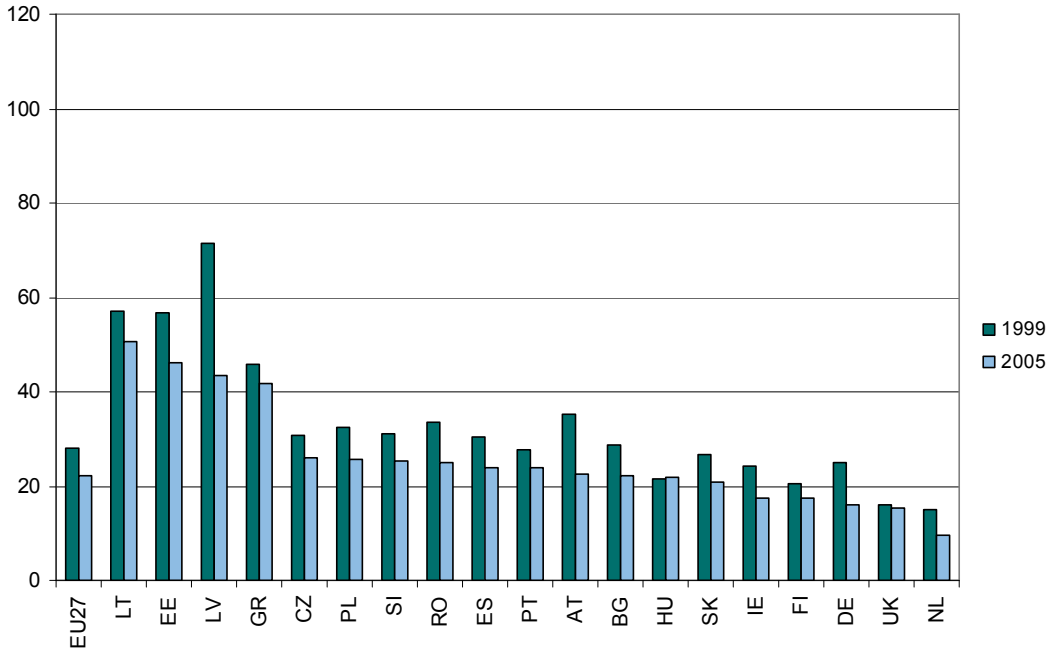

Figure I5. Mortality (1/100 000) by unintentional injuries among 15–24-year-olds in the EU27 and some other current EU-countries in 1999 and 2005.
Source: Eurostat, population and social conditions [1].

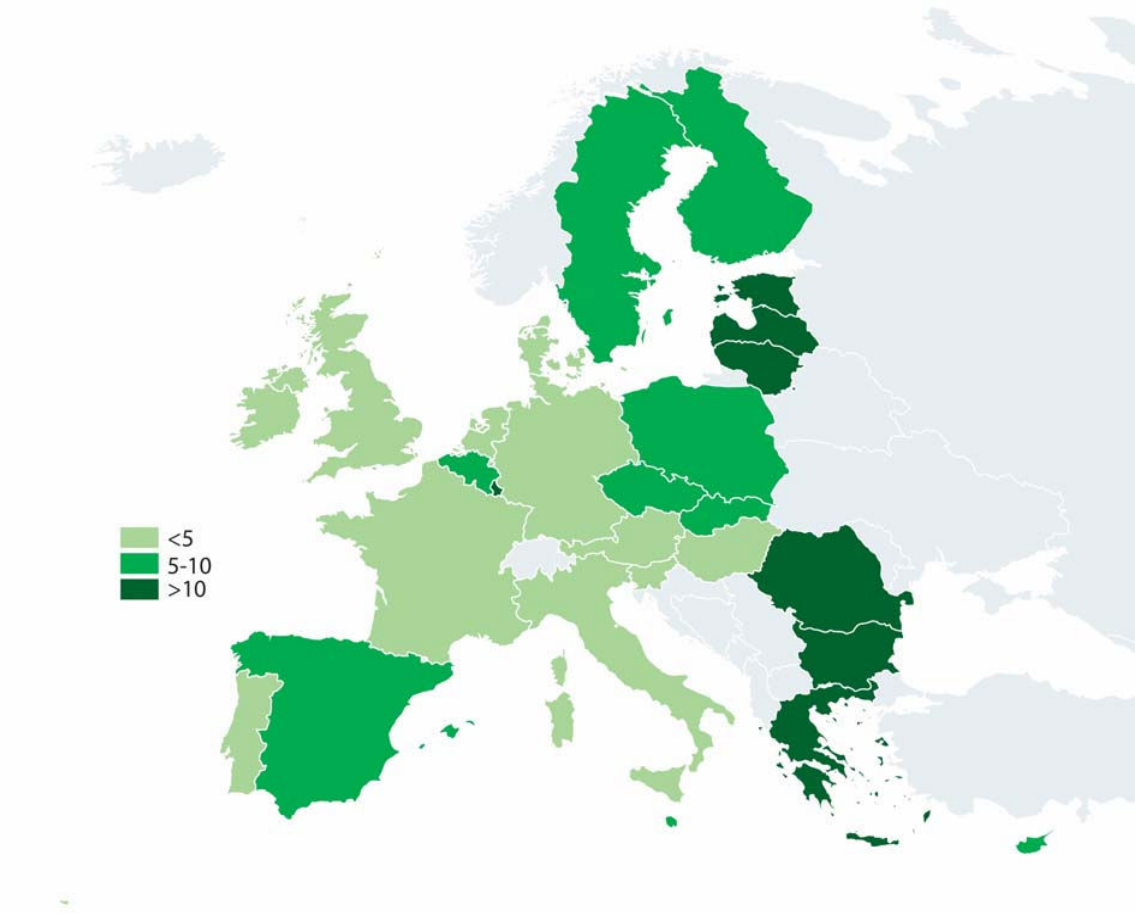

Figure I6. Fatalities due to home and leisure injuries (1/100 000) among 15–24-year-olds in the EU27[8].

The most common anatomical locations for unintentional injuries are the upper and lower limbs and the head [17]. The most frequently reported unintentional injuries include fractures, soft-tissue injuries, lacerations and trauma to the head and neck [5, 17].

In the HBSC-study, based on self-reports of injury morbidity, 15-year-olds adolescents reported considerably high injury occurrence: 52% of males and 38% of females reported having been injured at

[8] Calculation of Fatal Home and Leisure Accidents: Difference between Eurostat data - Accidents and adverse effects (V01-X59) minus Transport accidents (V01-V99) and minus ESAW-Data (see on deaths due to work-related accidents in EU-27). EU Injury Database (IDB): Injured in home and leisure accidents - Hospital episodes after home and leisure accidents, in most cases 3 year average of latest available years (AT, DK, FR, PT, SE: 2003-2005; NL: 2003-2004, UK: 2002). Eurostat: Average population (for calculation of rates per 100 000). The identification of home and leisure accidents in the routine injury registers is not without controversy as they usually do not represent a category of their own. Here, their scope in the cause of death data is estimated by considering all unintentional fatalities that are neither transport nor work place accidents.

least once in the previous 12 months, and more than 40% reported having been injured twice or more.

More than 50% of German, French and Spanish 15-year-olds reported having been injured more than two times in the previous 12 months, but there are substantial geographical differences in Europe in injury occurrence. Poland, Hungary, Finland and the Netherlands have the lowest rates; only one third of adolescents reported having been injured twice or more. [5.]

Injury morbidity data on unintentional injuries

In a report based on IDB data especially prepared for AdRisk-project [15], data on morbidity for seven countries, Austria, Denmark, France, the Netherlands, Portugal, Sweden, and the United Kingdom, were included. The severity level of injuries was analysed by the type of treatment[9], and the duration of hospitalisation. After separating the whole population into three age groups, children (0–14), young people (15–24) and adults (+25) it was clear that these three populations differed significantly from each other. Although the data is not representative of the entire EU27 and the individual country data are based on estimates, however, considering its coverage and details on injuries, IDB provides some indication of the injury morbidity situation in Europe.

In the aforementioned seven countries, most of the injuries among young people aged 15–24 are due to sports and leisure time activities (Figure I7), and represent more than two thirds of all injuries in this age group. Sports injuries are more prevalent among young people than adults (25 and up) and children (0–14). More than half of children's injuries are due to play and leisure activities. Among adults, there are fewer sports and leisure injuries and more injuries in residential areas that are categorised as "Do-it-yourself-work, Domestic work and other specified activity". Young people are less hospitalised (4%) than children (5%) and adults (11%). Distortions and injuries involving the lower extremities are more common among youth, whereas children (0–14) and adults (25 and up) have more fractures and open wounds.

Injuries vary significantly between the genders among 15–24-year-olds. In the similar vein that males have more mortalities due to injuries they also have more hospital entries for injuries than females. Only a third of all injuries in this age group occur among females, and 65% of the injuries are due to males' sports and leisure activities (sport 42%, leisure 23%). Sporting areas are more common injury locations among males when compared to females (36% vs. 24%), while for injuries in the residential areas the

[9] The types of treatment: 1) examined and sent home without treatment, 2) sent home after treatment, 3) treated and referred to further treatment by general practioner, 4) treated and referred to further treatment as an outpatient and 5) treated and admitted to a hospital.

situation is reversed (22% for men vs. 33.7% for women). Inside the home, injuries are more frequent in women: kitchen 5% for females and 2% for males, living room and bedroom 8% and 4%, and indoor stairs 5% and 2%, respectively. Injuries generate less hospitalisations among females (3%) than among males (4%), however, once hospitalised the mean duration of stay is comparable (4,9 days for females vs. 5,1 for males).

There are some variations in injuries between 15–19 and 20–24-year-olds. Injuries are more numerous in the younger age group and they have proportionally more sports injuries compared to 20–24-year-olds who have more injuries due to do-it-yourself or domestic works (Figures I8–I9). It appears that risk-taking in sports decreases somewhat by age. However, once hospitalised, older youth stay slightly longer in the hospital (mean, 5,5 days), while the mean duration among 15–19-year-olds is 4,7 days. Therefore, injuries among 20–24-year-olds seem to be slightly more serious.

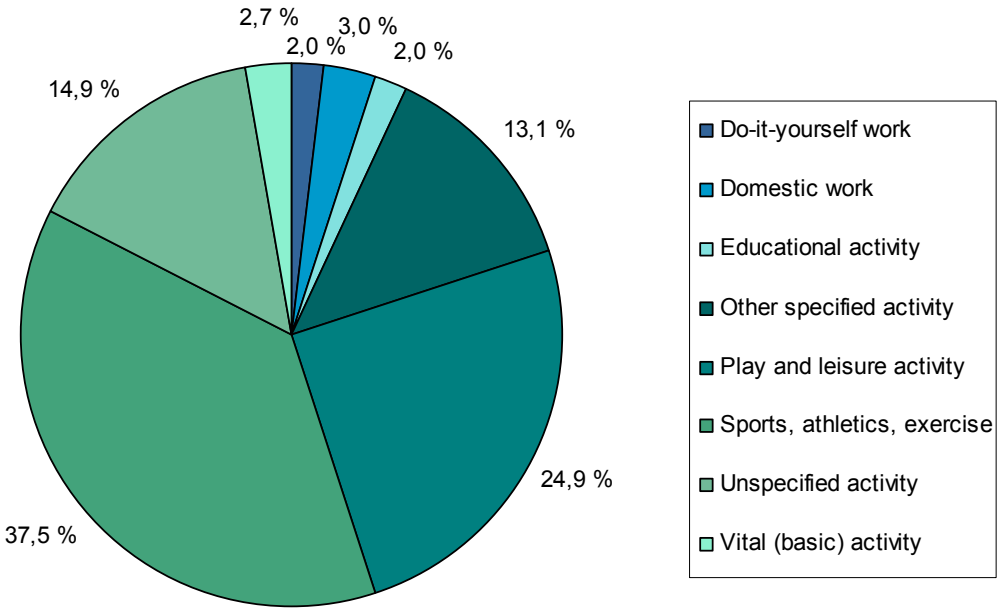

Figure I7. Young people's aged 15–24 home and leisure time injuries (%) in 2002–2005.
Source: IDB Hospital treated patients (Austria, Denmark, France, the Netherlands, Portugal, Sweden and the UK) – %; 2002–2005. Adapted from Adolescents' injuries within IDB [15].

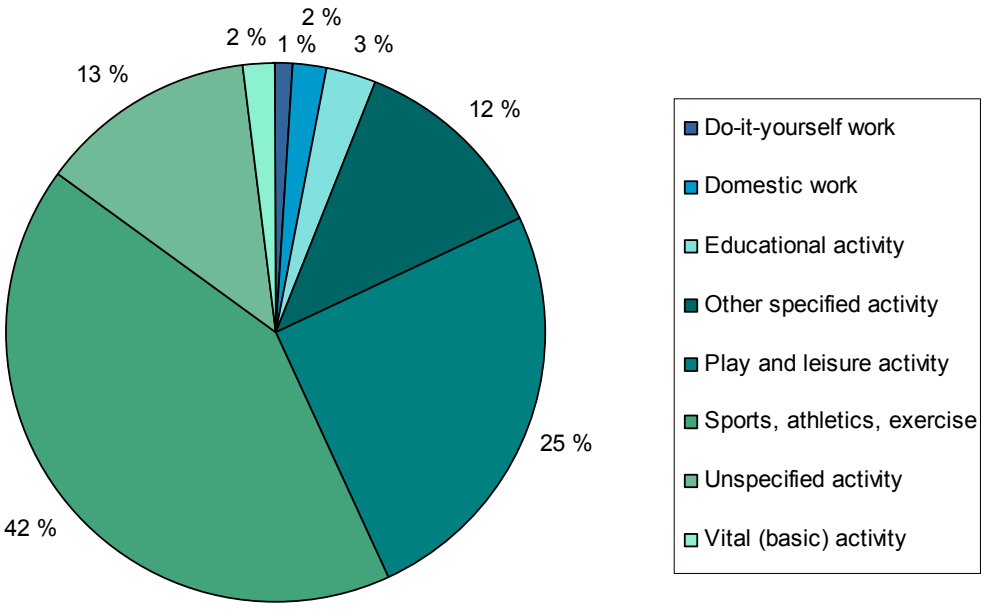

Figure I8. Young people's aged 15–19 home and leisure time injuries (%) in 2002–2005.
Source: IDB Hospital treated patients (Austria, Denmark, France, the Netherlands, Portugal, Sweden and the UK) – %; 2002–2005. Adapted from Adolescents' injuries within IDB [15].

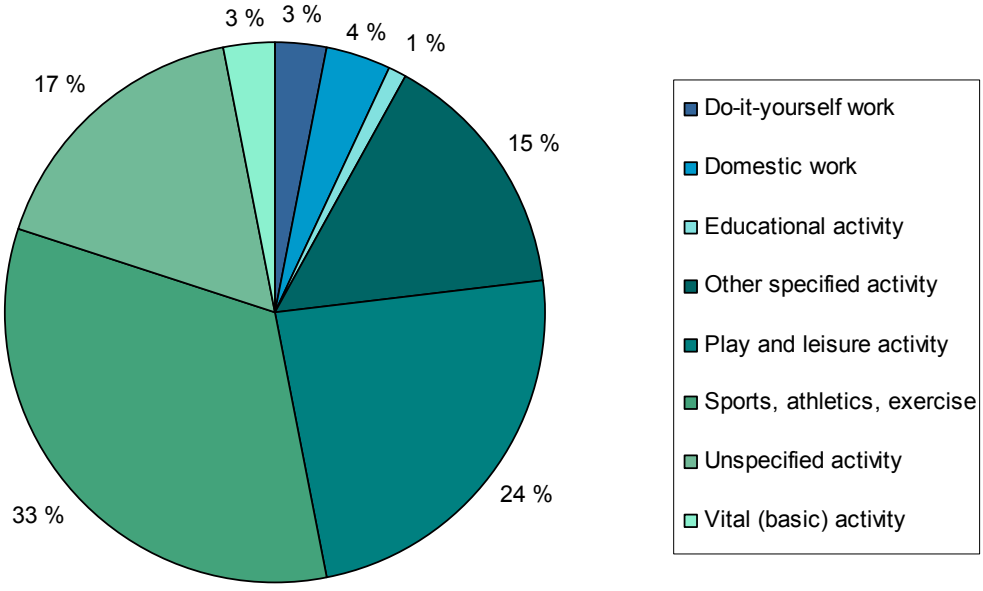

Figure I9. Young people's aged 20–24 home and leisure time injuries (%) in 2002–2005.
Source: IDB Hospital treated patients (Austria, Denmark, France, the Netherlands, Portugal, Sweden and the UK) – %; 2002–2005. Adapted from Adolescents' injuries within IDB [15].

Main points

- **Unintentional injuries represented 44% of the causes of death among young people aged 15–24 in the EU27 in 2005.**
- **The mortality rate for unintentional injuries was highest in Lithuania, Estonia and Latvia and lowest in the Netherlands, the United Kingdom and Germany in 2005.**

  Transport injuries (74%) followed by poisonings (6%) and falls (4%) are the most common unintentional injury causes of death in 15–24-year-olds.
- **Fatal unintentional injury incidence is higher among young people aged 20–24 than those aged 15–19. However, the proportion of unintentional injuries as a cause of death is higher for the age group of 15–19 years.**
- **More young men die due to injuries than women; men's injuries account for more than half of the unintentional injuries. Based on IDB data on 7 EU-countries, males also have more hospital entries for unintentional injuries than females.**

3.1.1 Traffic injuries

Traffic injuries are the most common cause of injury death among young people aged 15–24 in the EU27, accounting for more than 50% of all young people's fatal injuries (incl. violence and suicides) [1]. In the EU27, Lithuania, Greece and Latvia have the high mortality rates (25–32/100 000) related to traffic injuries while the Netherlands, Finland and the United Kingdom have low rates (8–12/100 000) (Figure T1, T2). Young drivers of cars and motorcycles are more likely to be injured than older drivers [4]. According to a comparative study of 57 countries, young people's traffic injury mortality rates are higher in high-income countries when compared to low- and middle-income countries [26].

Traffic injuries are also by far the most common unintentional injury, and fatal traffic injuries represent two thirds of young people's fatal unintentional injuries [1]. Traffic injury mortality in young people aged 15–24 in the EU27 was 17/100 000 in 2005. The trend in young people's mortality from transport injuries in the EU seems to be presently declining. An overall fall of 20% was seen from 1999 to 2005, and traffic mortality was decreasing in most of the EU27 countries during this period. [1.]

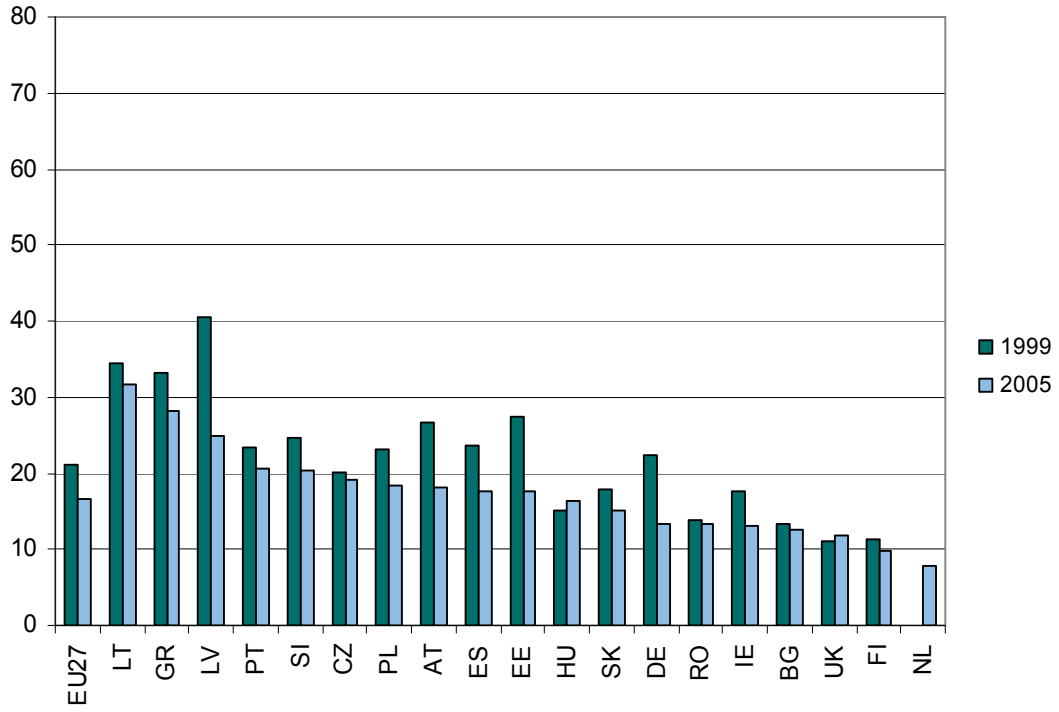

Figure T1. Mortality (1/100 000) related to transport injuries among 15–24-years-olds in the EU27 and in some EU-countries in 1999 and 2005.
Source: Eurostat, population and social conditions [1].

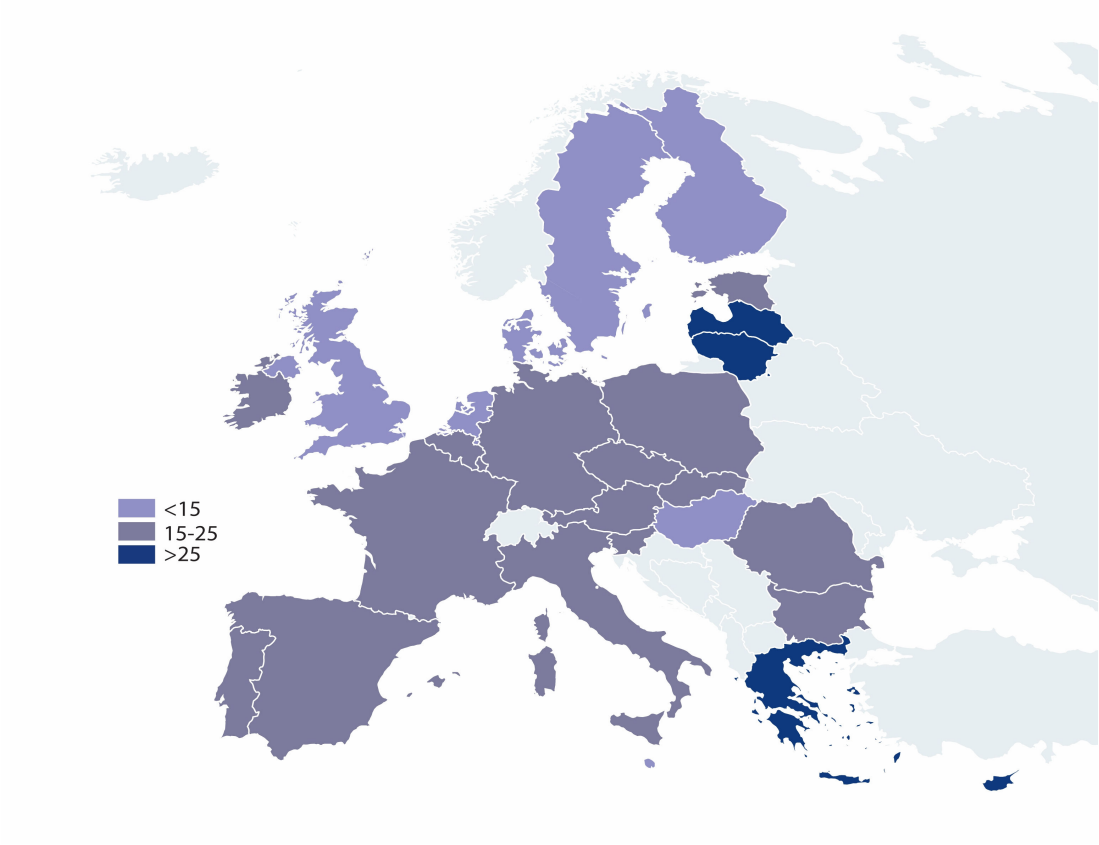

Figure T2. Road fatalities (1/100 000) among 15–24-year-olds in the EU27.
Source: ESTAT Population (in order to calculate rates per 100 000), the EU-27, 3-year average of latest available years. IRTAD: Fatalities and injuries from road traffic accidents (incl. mopeds & mofas, motorcycles & scooters, passenger cars & station wagons, pedestrians, bicyclists, other & unknown road users), 3-year averages of latest available years, mostly in 2003–2005 (no data available from BG, CY, LT, LV, RO, SK).

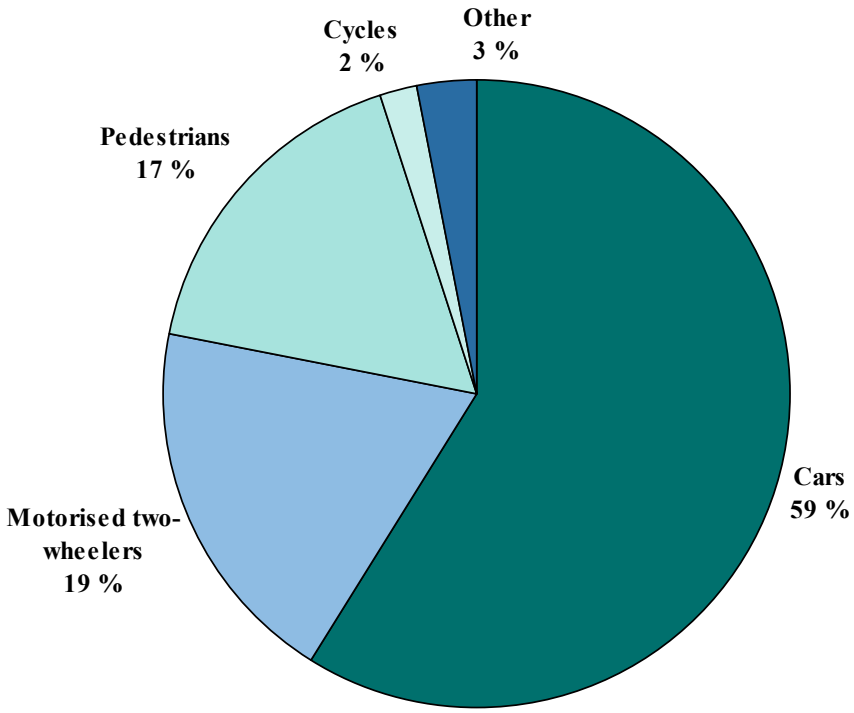

Figure T3. Traffic deaths (%) by mode of road transport among young people aged 15–24 in 2002–2004.
Source: WHO (2007): Youth and Road Safety in Europe [27].

Travel patterns change from childhood to adulthood [27]. Most of the fatal traffic injuries among children below the age of 15 are pedestrian or bicycle-related (60%). In contrast, most (80%) of the young people's aged 15–24 traffic deaths are due to car or motorised two-wheeler related injuries, and cycle and pedestrian deaths account for the remaining one fifth of all traffic deaths (Figure T3). [27.] Traumatic brain injuries are the most common cause of traffic related fatalities [28]. A significant amount of cycle and motorised two-wheeler fatalities and severe injuries could have been prevented with the use of safety helmets [29-31].

Deaths from traffic-related injuries are more common in the age group of 20–25 years as compared to younger people aged 15–19. In 2005, in the EU27, there were 6100 fatalities from traffic injuries in the older age group and 4300 in the younger. [1.] However, of all unintentional deaths in 2005, 76% occurred among young people aged 15 to 19 years and were due to traffic, while the corresponding percentage for 20–25-year-olds was 73% [1].

Young people's traffic injuries are overrepresented in the evening [21, 32-34] and at weekends [21]. A great number of injuries involve adolescent moped drivers in densely populated areas [27, 35]. Mopeds are commonly used by young people as a means of transportation, especially in the

Mediterranean countries such as France, Greece, Italy and Portugal. Also, the proportion of fatal motorised two wheeler injuries is highest in these countries. [27.] In Italy, most of the fatal traffic injuries among youth aged 15–17 occur while driving scooters. In year 2000, 85% of all the fatal traffic injuries in this age group were related to scooters and 4% to motorcycles. [21.]

According to the review on young people's aged 16–24 views on unintentional injuries in relation to unsafe road behaviour, risky drivers were more likely to think they will sustain an injury than 'safe' drivers. However, risky drivers were less worried about being injured than other drivers. Young people also considered that taking risks is not the same as driving unsafely. [4.]

Risk-taking youths thought they can measure when taking risks is safe. Drinking alcohol before driving was considered to be dangerous and socially unacceptable. However, some young people thought that taking cannabis before driving did not increase their risk of injuries. The presence or absence of passengers can affect driving behaviour. According to self-reports, presence of peers may encourage risk-taking behaviour among young people, while presence of parents tends to reduce it. Furthermore, young people reported that they would drive more riskily while on their own and late at night when streets are calmer than during the day or when passengers are present. [4.]

According to the review on young people's views on bicycle helmet use, young people did not consider cycling as dangerous, or believe that accidents would happen to them [4]. Young people's perceptions of risks depended on cycling conditions, e.g. darkness or bad weather. Some of them thought that wearing a helmet is only necessary for certain types of journey. The concerns of being teased by peers were likely to have a negative influence on helmet use. Parents and legislation were likely to have a positive influence on the wearing of helmets. [4.]

Gender difference in traffic injuries

The risk of traffic injuries is significantly higher for young people than for other populations [1, 32]. The difference is more pronounced in young men: traffic injury mortality is threefold higher in men compared to women [1, 28, 36]. The road traffic injury mortality rate in the EU27 for men aged 15–24 was 26/100 000 in year 2005 while for the whole male population it was 16/100 000. The corresponding figures for women were 7/100 000 and 5/100 000, respectively. [1.]

Men drive cars and motorcycles more than women. However, men are also more likely to overestimate their skills as drivers and to engage in risky driving, i.e. to drive under the influence of alcohol, at

excessive speeds, and not wear seat belts or helmets. [4, 21, 27, 28, 32.] A Finnish study on young people's traffic injury patterns indicates that the most typical injuries in women are those related to car accidents during vehicle manoeuvring and mastering traffic situations, i.e. losing control of the car while reversing, in a sober state, or when not speeding. Men's injuries in turn are more likely to be connected to driving behaviour and attitudes, i.e. accidents while speeding and under the influence of alcohol. [37.]

Protective and risk factors for traffic injuries

Alcohol and drug use is a risk factor for young people's traffic injuries [21, 27, 32, 34, 36, 38, 39]. Young people's inexperience in traffic is another important risk factor [21], which is especially high during the first 12 months after receiving the driver's license [32, 33, 35]. Other factors include psychological characteristics (e.g. thrill-seeking, over-confidence) either as a driver or as a pedestrian (crossing a street) [19, 21, 28], excessive or inappropriate speed in relation to driving conditions [27, 28, 32], not using helmets or seat belts, and insufficient vehicle crash protection [27, 28].

Young people very often, erroneously, believe that they have good control over their own behaviour and situations [21]. They have a high degree of self-confidence in their driving skills [21] and underestimate the risks they are taking [19]. Young drivers tend to rank their driving ability higher than that of other young people and even as good as that of older, more experienced drivers [40].

Young people with low SES are more likely to have been involved in traffic injuries than those with higher status [4, 27, 41, 42]. There is substantial evidence indicating that this is due to exposure rather than behaviour [43]. Young people with low SES are more likely to live in more hazardous neighbourhoods (high-speed cars, unsafe roads) and are thus more exposed to traffic injuries [27].

Main points

- **Traffic injuries are the most common cause of unintentional deaths among young people in the EU.**
- **Traffic injuries account for more than 40% of all young people's fatal injuries (incl. violence and suicides).**
- **Young people's traffic injuries have been decreasing in the recent 20 years.**
- **Lithuania, Greece and Latvia have the highest traffic injury mortality rates and the Netherlands, Finland and the United Kingdom the lowest within the EU27.**
- **Males have three times more traffic injuries than females.**
- **Motor vehicle-related injuries are the most common fatal traffic injuries among young people.**
- **Traumatic brain injury is the leading cause of traffic related death.**
- **Young people's traffic injuries are overrepresented at nights and at weekends.**
- **Alcohol and drug use, inexperience, thrill-seeking, low socio-economic status, not using protective equipment (helmets, seat belts), and peer pressure are risk factors for young people's traffic injuries.**

3.1.2 Sports injuries

Participation in sports has increased in recent years, which of course is seen as a positive development because of the widely recognised health benefits of physical activity. However, along with the positive development, injuries due to sports have become common. Actually sports are now one of the most common causes of injuries and sports injuries are considered to be an emerging public health problem. [44, 45.]

The greatest numbers of sports-related injuries occur to young people. Data from sports injuries at the European level is scarce. Studies providing information from several EU countries use IDB, but the number of countries involved may vary. It should also be noted that the IDB study protocol records only injuries requiring medical attention. In addition, other exclusion criteria in the protocol may lead to an underestimate of the actual injury rate. In 2003–2005, according to IDB data from twelve countries, about 70% of persons injured during playing football were under 25-year-olds [14]. There is evidence that young people between the ages of 18 and 24 years are more likely to be injured in sports than in the home, at work, or on the road [4]. Mattila et al. have stated that sports injuries are the most common type of injury in both boys and girls [17]. A rough estimate of the sports injury problem in the EU is described in a research report by Petridou et al. [44]. IDB data was gathered from participating hospitals in seven EU countries (Austria, Denmark, France, the Netherlands, Portugal, Sweden and the United Kingdom) in 1998. The results indicate that sports injuries among young people aged 15–24 years are more frequent than among older age groups. At least one third of the treated patients older than 15 years belonged to this age group. [15.]

According to more recent IDB data (2002–2005) from five EU countries (Austria, Denmark, France, Greece and the United Kingdom) about two thirds of all injuries among young people aged 15–24 years were caused by sports and leisure time accidents. Among 15–19-year-olds, sports accidents accounted for 41% of all injuries treated in hospitals, whereas among 20–24-year-olds the proportion was 32%. However, the overall proportion of sports related injuries among young people aged 15–24 was significantly larger than that among children or adults. [15.]

Comparison of the injury rates between different studies is problematic, firstly because the extent of sports injuries is described by different methods, and secondly because the definition of sports injury varies between studies [46]. All in all, since there is a lack of information on sports injuries in many European countries including Europe as a whole, more information is needed, especially on sports-related injuries among young people.

Protective and risk factors in sports injuries

Injuries related to sports and physical activities can be avoided by preventive measures [48]. In case of sports injuries, keeping in mind the positive health effects related to sports and physical activity, the typical prevention strategy of reducing the time of exposure is not recommended. So it is necessary to search for other strategies and in this search the existence of adequate epidemiological information is essential. [48.]

Sports injury causation is a complex interaction between internal and external risk factors and injury mechanisms. Bahr and Krosshaug have developed a comprehensive model for sports injury causation. [49.] The model accounts for internal and external risk factors, events leading to injury situation (playing situation, opponent behaviour), as well as description of the whole body and joint biomechanics at the time of injury. This kind of model can be used to assess the injury mechanism of a particular injury type in different types of sports.

External factors

Research has shown that the risk of injury increases with increased volume and intensity of physical activity, and that certain sports or physical activities expose people to a different risk of injury [45, 46, 50]. Michaud et al. concluded that organised sports such as team sports with high frequency of exercise, bodybuilding, and 'extreme sports' like skateboarding, rollerblading, and snowboarding expose adolescents to a greater risk for injuries [46]. In the Finnish study by Parkkari et al. the highest risks of sports injuries were found in sports like squash, orienteering, and judo and the lowest in golf and dancing [45]. IDB data showed that injuries during team sports with ball account for about half of youth sport injuries treated in hospitals (Figure S1). However, higher injury rates in certain sports do not necessarily mean that these are more dangerous than others, only that they are more popular. When participation occasions were taken into account, rugby was the most injurious activity followed by football and hockey. [4.] It is also noteworthy that certain sports, like snowboarding, have been suggested to attract adolescents who are "risk-takers" [46].

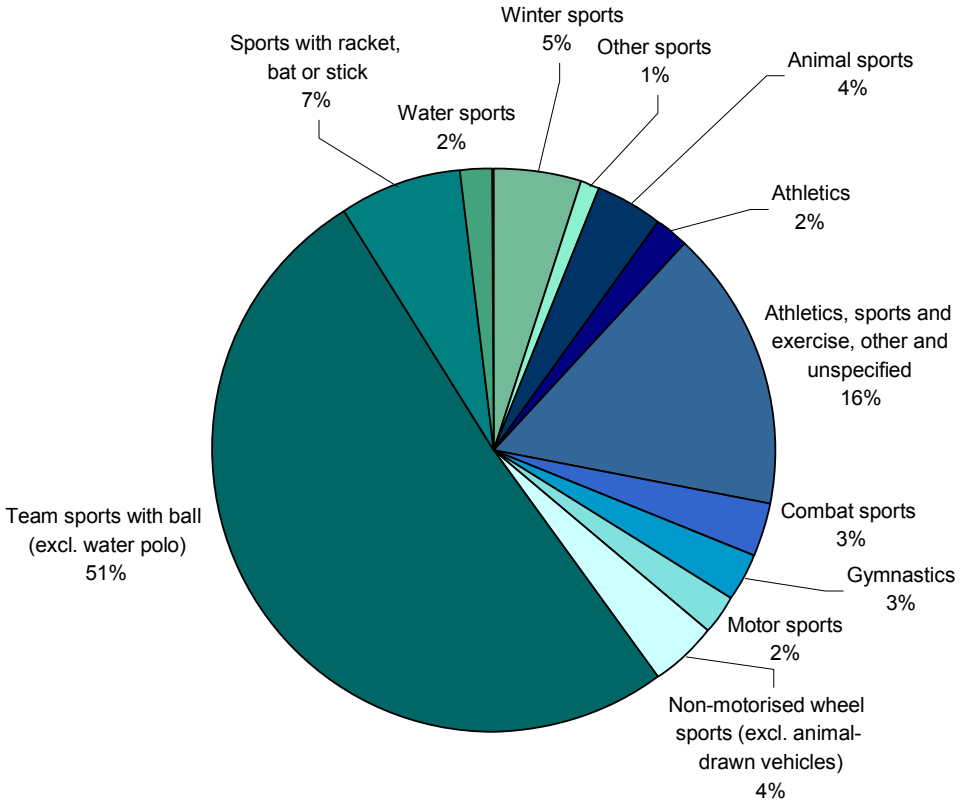

Figure S1. Sports practised (%) at the time of injury among 15–24-year-olds in 2002–2005.
Source: IDB Hospital treated patients (Austria, Denmark, France, the Netherlands, Portugal, Sweden and the UK) – %; 2002–2005. [15].

Junge et al. studied injuries in youth amateur soccer and rugby, which are the two most popular ballgames in Europe and worldwide [51]. In both sports, two thirds of all injuries occurred during game: in total 47.5 injuries per 1000 game hours in soccer and 129.8 in rugby. Two thirds of the injuries were caused by physical contact with another player in rugby, whereas in soccer, contact injuries were as common as non-contact. [51.] Also, van Mechelen et al. demonstrated that the risk of injury is significantly higher in competition than in training sessions and in contact sports versus non-contact sports [52].

In sports involving a great deal of physical contact with other players, injuries can be prevented through rules and fair play. For example, in ice hockey, with the primary mechanism of injury being body checking, followed by stick and puck contact [53, 54], strict rules could reduce especially the amount of severe injuries [54]. An important way to prevent an injury, or at least reduce its severity, is to use personal protective equipment. For example, mouth guards can reduce the incidence and severity of dental and soft tissue injuries in various sports and recreational activities [55], helmet use reduces the risk of head injury in skiing and snowboarding [56, 57], and in ice hockey, facial protection significantly

reduces the risk of facial, dental and eye injury [58, 59]. Through legislation, the use of protective equipment can be increased (e.g. in many countries helmets are mandatory in ice hockey and during cycling).

Factors related to sports environment are also significant when assessing the injury risks of sports and recreational activities. Most sports injuries occur in sports arenas, but residential and transport areas are also common locations of occurrence for sports and leisure time injuries [15, 45]. Appropriate materials for playing surfaces, together with good maintenance and condition of the area and facilities are essential components of injury prevention in many sports. For example, in alpine skiing, trail design and maintenance are associated with injury occurrence [60].

Internal factors

As in other types of injuries, young men are more likely than women to sustain a sports injury and to be treated in hospital for it. About two thirds of all sports injuries are sustained by men. [15, 50, 61, 62.]
It has been noted that, due to the types of sports practised, boys aged 9–19 tend to have more sports injuries than girls [46]. Boys are more involved in sports entailing extensive body contact, and they also tend to have a rougher style in sports than girls [63]. Young men participate in sports more frequently and are more actively involved in vigorous physical activity and sports clubs than women [64, 65]. According to IDB data, by percentage young men are more often than young women injured in team sports with ball, whereas young women are more likely to be injured in animal sports (Figures S2 and S3). It has been noted that higher-risk sports such as soccer, rugby and martial arts are popular in the male population, whereas lower risk activities are more popular among the female population [44, 50].

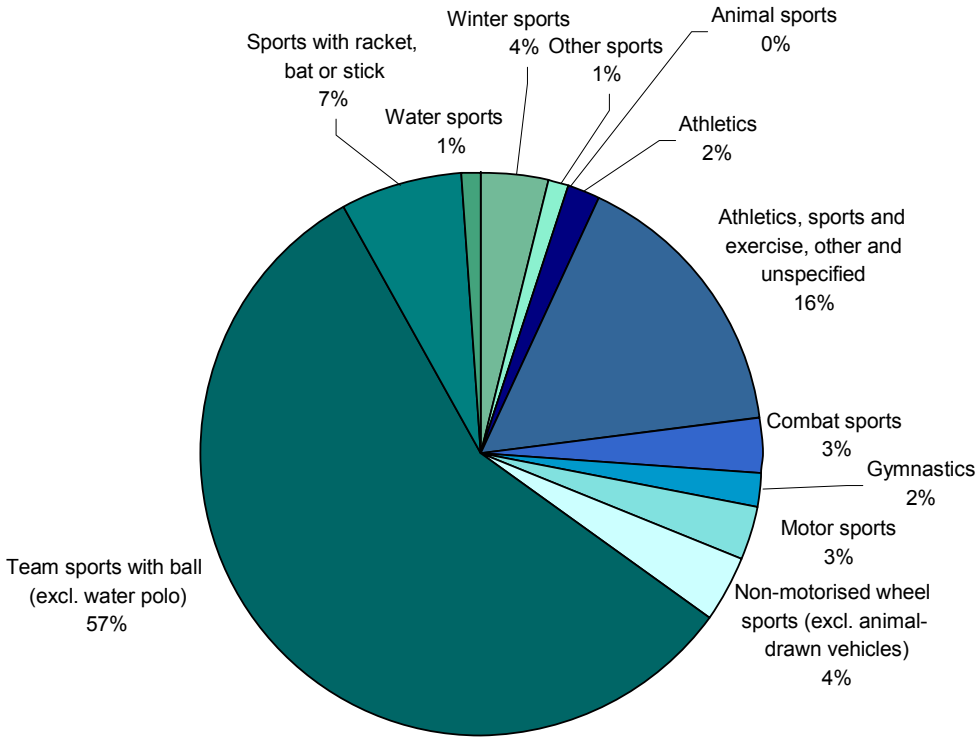

Figure S2. Sports practised (%) at the time of injury among 15–24-year-olds males in 2002–2005.
Source: IDB Hospital treated patients (Austria, Denmark, France, the Netherlands, Portugal, Sweden and the UK) – %; 2002–2005. [15].

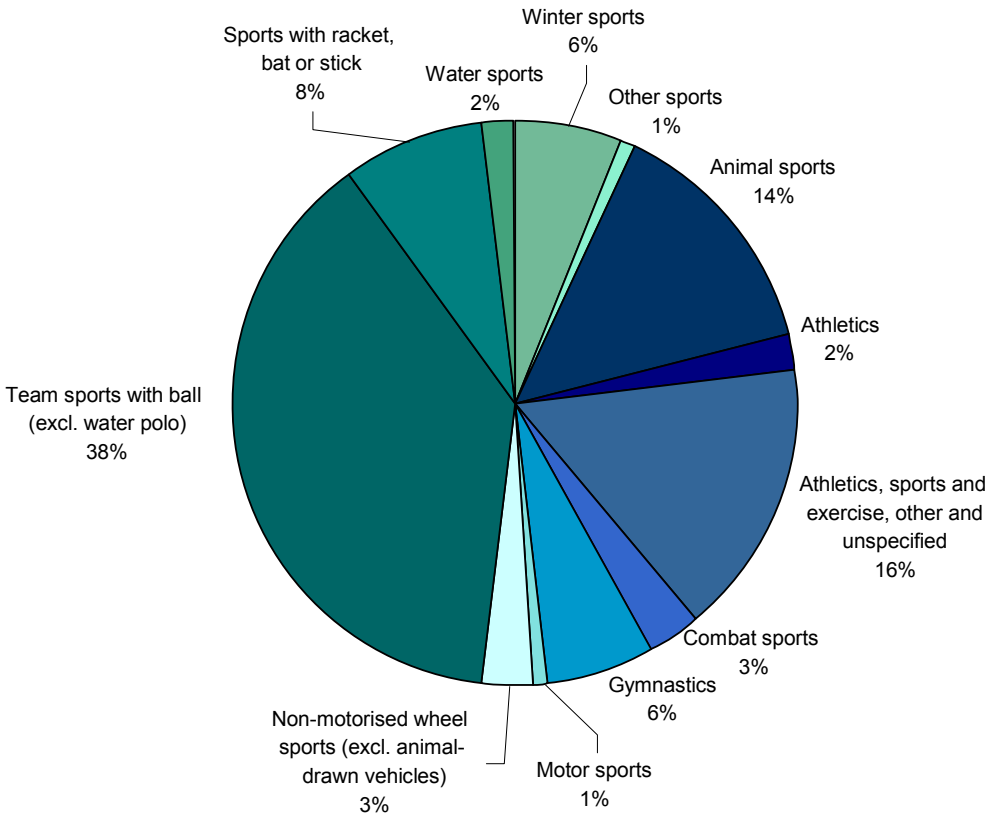

Figure S3. Sports practised (%) at the time of injury among 15–24-year-olds females in 2002–2005.
Source: IDB Hospital treated patients (Austria, Denmark, France, the Netherlands, Portugal, Sweden and the UK) – %; 2002–2005. [15].

Research results on associations between gender and sports injuries are somewhat inconsistent. As previously noted, several studies indicate that men are at a higher risk during sport activities [45, 46, 50, 62, 66, 67]. Nevertheless, some studies indicate that women are at a higher risk during particular sports activities, such as soccer and basketball [68-70].

Other internal factors related to injury risk in sports include e.g. health, physical fitness, body composition, and psychosocial and psychological factors. For example, poor cardiovascular fitness, muscular imbalance or weakness, ligamentous laxity or joint instability have been associated with increased risk of injury [71, 72], and anthropometrical factors such as excessive weight and height have been related to acute sports injuries [72]. According to Michaud et al. the risk of sports injury increases with pubertal development [46]. Also stressful life events, dominance and vital exhaustion are interrelated with increased injury risk [52, 73, 74].

Different studies have concluded that a previous injury easily recurs and is also a significant risk factor for new injuries [72, 75-77]. Research from the Netherlands suggests that previous injury and exposure

time are more strongly related to risk of sports injury than any physiological, anthropometrical, psychological or psychosocial factors [52].

Material well-being has also been associated with sports injuries [78-82]. Adolescents from affluent families have more opportunities to participate in more expensive organised sports, so their injuries occur more typically in sports facilities, whereas sports injuries in adolescents of lower income families occur in the home or yard [78].

Different risk factors tend to cluster in the same individuals. In a German national study, the highest incidence of sports injuries was among subjects with unhealthy eating habits and high alcohol consumption [83]. Studies from Austria and the US suggest that skiing under the influence of alcohol or hangover increases the risk of injury, and that drunk skiers also sustain more severe injuries [84, 85]. Research conducted among army recruits revealed that smoking can increase the risk of injury during physical training [86]. It has been reported that young people engaging in *multiple risk behaviour,* such as smoking, drinking, drug use and sensation-seeking, are at a higher overall risk of injury [7, 10], but according to Janssen et al. multiple risk behaviour does not seem to be associated with an increased risk of sports injuries [87].

Main points

- **According to IDB data on home and leisure injuries[10] from five EU countries, about two thirds of all injuries are caused by sports and leisure time injuries among young people aged 15–24 years.**
- **IDB data from seven EU countries indicates that sport injuries requiring medical attention are more frequent among young people than among older age groups.**
- **The lack of a consistent definition of sports injury and the inadequate registration of sports injuries makes it difficult to estimate the prevalence of sports injuries within the EU as a whole.**
- **For example, certain sports, frequency of physical activity, previous injury, body composition, and material well-being have been associated with increased sports injury risk.**
- **Young men sustain more sports injuries and are more often treated for them in hospitals than young women.**

[10] See Chapter 3 for more details on IDB data.

3.1.3 Work injuries

Young people aged 15–24 formed one tenth of the total workforce in the EU25 in 2004 [88]. In 2002 in the EU15, the proportion of this age group was highest (17%) in Ireland and the Netherlands, while in Italy and Luxembourg the proportion was lowest, only 8% of the workforce [89].

It has been noted that younger workers (aged 15–24) are more likely to suffer non-fatal occupational injuries than their older colleagues, while fatal injuries at work are more common among workers over the age of 55 [90]. According to statistics, the proportion of young workers involved in work-related injuries decreased between 1995 and 2003 in the EU15; nevertheless, less among the young workers than overall or among older workers [91]. As the workforce in Europe is also becoming more aged, it is in the interest of the EU-countries to increase the number of healthy working years. In this respect, work-related injuries are becoming an increasing burden to the European societies.

In 2004, under 25-year-olds were involved in 651 548 occupational injuries in the EU15 (Figure W1). Their proportion of all work-related injuries was 16%. The highest proportion of young people's occupational injuries was found in Austria and France (20%) and the lowest proportion was in Sweden (9%). According to European social statistics, 18–24-year-olds had non-fatal injuries at work 42% more often than workers of the EU15 on average.

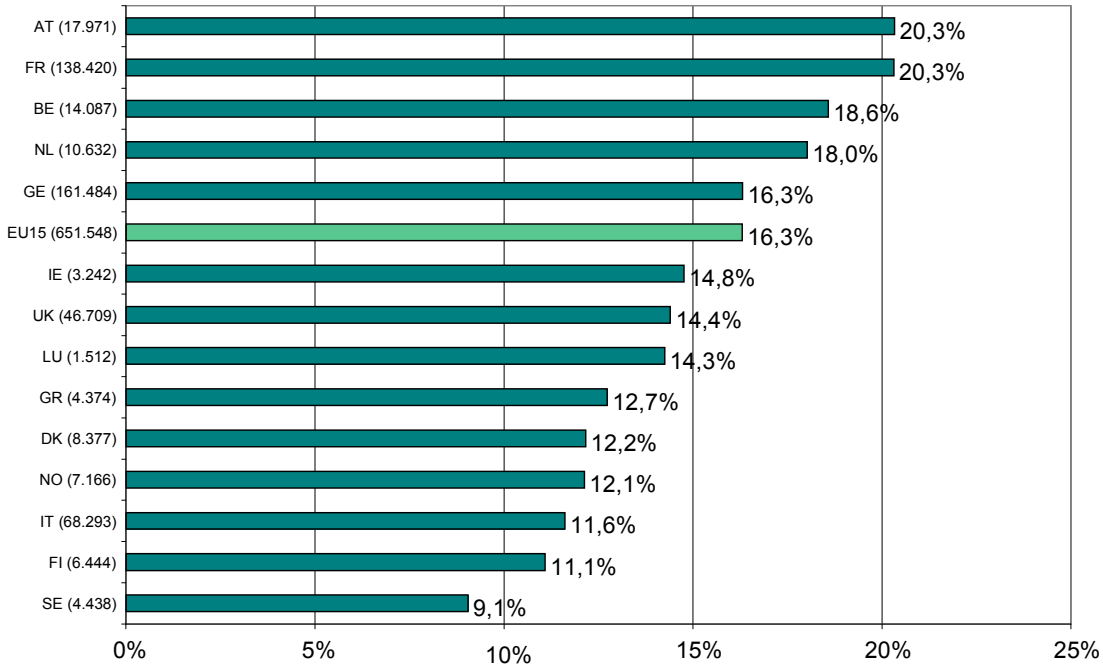

Figure W1. Injuries at work (%) among under 25-year-olds in 2004.
Source: Eurostat [18].

A total of 638 young workers under 25 years died at work between 2002 and 2004 within the EU15 (Figure W2). The proportion of this age group from all occupational fatalities was 9%, which was in percentage nearly half of all the occupational injuries in the region in 2004. Between the individual countries, the highest proportion of work-related fatalities among young people was found in Luxembourg and was almost three times higher than in countries with the lowest proportions (Austria, Sweden, and Germany).

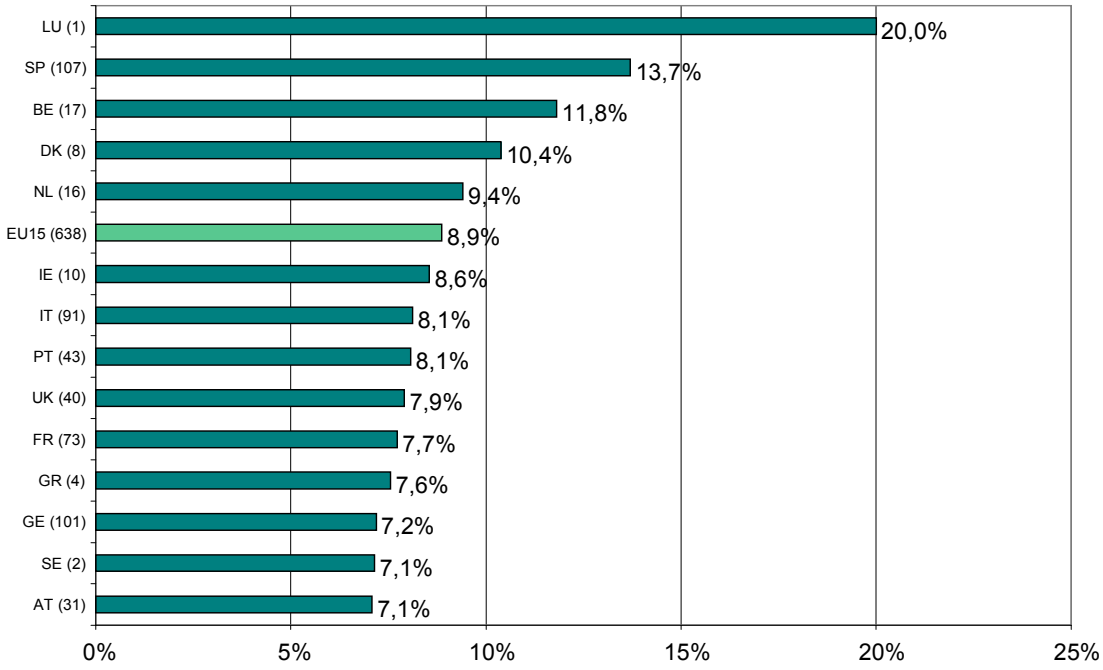

Figure W2. Fatalities due to work-related injuries among under 25-year-olds in 2002–2004.
Source: Eurostat [18].

According to the national registries aggregated by ESAW and WHO, in 2002–2004, the highest mortality rates in the EU27 from unintentional injuries at work were found in Italy, Spain, Portugal, Cyprus, Estonia, Latvia, Lithuania, and Austria whereas the lowest rates were in the United Kingdom, Sweden, the Netherlands, Greece, and Luxembourg (Figure W3 and Table W1).

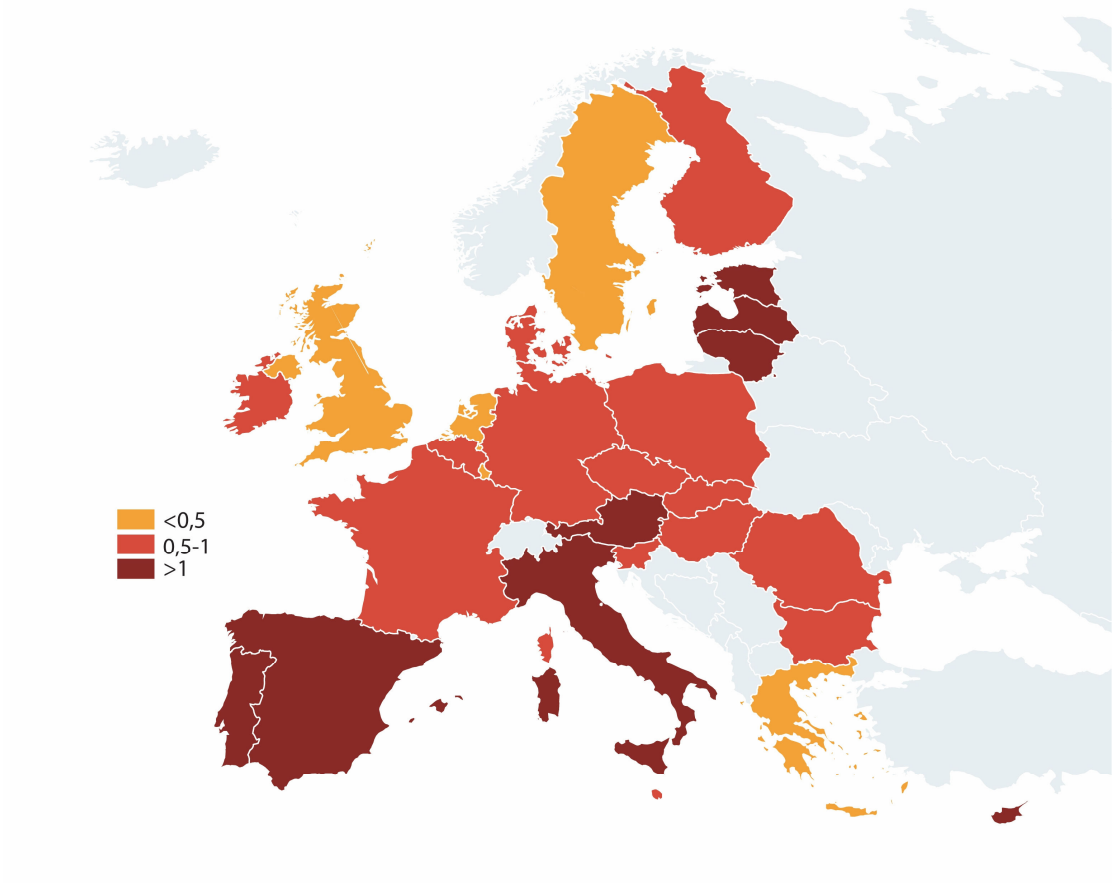

Figure W3. Fatalities due to work-related injuries (1/100 000) among 15–24-year-olds in the EU27.
Source: ESTAT – ESAW, Deaths due to work-related injuries (incl. injured per 100 000 inhabitants), 3-year average of the latest available years, 2002–2004.

During the same time period, morbidity rates related to occupational injuries were highest in Spain and Luxembourg. However, this data was available only for a few of the EU countries (Table W1). In fifteen countries the data was available there were altogether 1444 work-related injured per 100 000 inhabitants in 2002–2004 (3-year average).

Country	Fatalities due to work related accidents	Injured due to work-related accidents	Work-related fatalities per 100 000 inhabitants	Work-related injured per 100 000 inhabitants
BE	11	1 522	0,9	121
BG*	*8*	-	0,8	-
CZ*	*12*	-	0,9	-
DK	4	8 141	0,7	1 364
DE	60	173 048	0,6	1 796
EE*	*3*	-	1,6	-
IE	5	2 874	0,8	449
EL	2	4 921	0,1	352
ES	79	148 322	1,5	2 775
FR	64	145 600	0,8	1 784
IT	77	73 795	1,3	1 206
CY*	*2*	-	1,4	-
LV*	*5*	-	1,5	-
LT*	*8*	-	1,5	-
LU	0	1 695	0,0	3 231
HU*	*9*	-	0,6	-
MT*	*0*	-	0,5	-
NL	7	13 107	0,4	674
AT	16	17 657	1,6	1 763
PL*	*53*	-	0,8	-
PT	24	22 903	1,8	1 705
RO*	*28*	-	0,8	-
SI*	*2*	-	0,8	-
SK*	*7*	-	0,8	-
FI	3	6 464	0,5	992
SE	4	4 918	0,4	453
UK	16	53 605	0,2	691
EU27*	**509**	**678 572**	**0,8**	**1 444**

Table W1. Fatalities and injured due to work-related accidents (1/100 000) among 15–24-year-olds in the EU27.
Source: ESTAT – ESAW, Deaths due to work-related injuries (incl. injured per 100 000 inhabitants) and more than 3 days lost (4 days of absence or more) due to work-related injuries (incl. injured per 100 000 inhabitants), 3-year average of the latest available years, 2002–2004. *Estimations based on the average numbers of the other EU Member States.

A significant variation between the EU countries can be seen when assessing the rates of fatalities and non-fatal occupational injuries. Differences between individual countries and non-consensus in studies in defining what constitutes a work injury set challenges to estimation of the absolute prevalence of work injuries. Also, employment is defined differently depending on whether informal employment (e.g. baby-sitting, voluntary work) common to young workers is taken into account or not. [91.]

However, in conclusion, young workers were more often involved in occupational injuries than older

workers. Fortunately their injuries were less often fatal. This is in line with a review by Salminen based on 63 studies: young workers had a higher non-fatal injury rate but a lower fatality rate than older workers [92].

Factors related to work injuries among young workers

The causes for the increased risk of unintentional injuries at work among young workers are diverse. European Agency for Safety and Health at Work lists for example the following factors: lack of awareness of occupational safety and health risks, lack of safety information and training, lack of needed skills for the job in question, physical or mental immaturity, and high risk-taking behaviour among some young people [93]. However, not enough is known about occupational injuries and their aetiology within the EU. To some extent, the risk factors studied in the US and other countries outside the EU can be applied to the European situation.

In 2005, the workforce in the EU25 was predominantly male, also among young workers: 39% of young men and 33% of young women were employed [91]. Occupational injuries are more likely to occur in men that women [92]. Yet, even if the effect of the various sectors of economic activity and the full-time equivalent employment are adjusted for, men are about twice as likely as women to sustain occupational injuries. This may be explained at least partly by differences in the tasks performed by men and women within one sector of economic activity. [89.]

In assessing young workers' work-related injuries, it is important to clarify the most common fields of activities among this age group. Within the EU25, the highest proportion of young workers can be found in hotels and restaurants (23%), trade (16%), other community, social or personal service activities (14%), and construction (13%). These sectors may vary slightly between the Member States. [91.]

It has been noted that some industries are more risky to young workers than others. Especially in construction, agriculture and manufacturing, young workers are at a higher risk of injuries with more than three days lost compared to the average worker. However, regarding fatal work-related injuries the picture is less clear, even though young workers in agriculture, construction, transport and communication have the highest incidence rates of fatal accidents. [91.]

Within the EU15, farming is one of the most dangerous occupational activities with a well-recognised high severity in terms of morbidity and mortality. Use of modern machinery increases the severity of

work-related injuries, and factors such as farm vehicles, tractors, and farm structures have been reported as the most common causes of fatal occupational injuries in farms. In the smaller farms, among employers and self-employed, the number of occupational farm injuries, both fatal and non-fatal, was higher. [91.] Most of the fatalities among American young workers in agriculture were related to machinery; for example, overturning of tractor was a particularly high risk for young farm workers [94, 95]. According to research evidence, roll-over protective structures or seat belts in tractors can reduce these injuries [96, 97].

Construction industry is another dangerous sector. In France, the risk in young workers of having a work-related injury in this sector is 2,3 times higher than the average for all sectors. [91.] However, in a study from the US, young construction workers aged 19 or younger had slightly lower fatality rates than adult workers. Exposure to electrical hazards, material handling equipment, and motor vehicles represented a high risk for young workers. [98.] In Belgium, for example, the sector with the highest share of occupational injuries (28,8%) among young workers in 2003 was the manufacturing industry [91]. In Sweden, the risk of occupational injuries causing a permanent medical disability was found twice as high for young wood workers between 16 and 19 years of age than for older wood workers. Only a third of workers reported having received training on the machine involved in the injury. [99, 100.]

As noted before, hotels and restaurants are popular workplaces among young people. According to studies conducted in the US, the occupational injury rate for young people working in fast food restaurants was 1,7 times higher than that of young workers in all other industries in the country [101-103]. Work pace pressure increased the risk of occupational injury in these restaurants [101].

Based on nine cross-sectional studies, hazard exposure and work pace pressure were the most consistent factors related to unintentional, non-fatal work-related injuries among young people aged 12–24 [104]. Factors such as negative affectivity, job tenure, physical hazards, work load, and job boredom have also been connected to work injuries [105]. A questionnaire study on Brazilian students pointed out that psychological job demands increased their risk of work-related injury by three times [106].

Lack of experience may be one of the factors related to young people's higher occupational injury rate [92]. In a study by Zierold et al., teens who had a near-miss incident were nine times more likely to be involved in a severe injury, and those who had a co-worker injured were three times more likely to report being severely injured [107]. Focus group interviews of Canadian young workers showed that they consider injuries as part of their work. Creating safer working conditions was seen difficult or of

secondary importance. The females emphasised how their complaints were disregarded by their supervisors, whereas males said they stifled their complaints in order to act more mature among their older co-workers. [108.] It may be that young workers feel it is impossible to refuse to perform a task that is inappropriate, even dangerous, because they want to be treated as an adult instead of a child. They may also believe that they would not be asked to do something that is considered dangerous. [109.]

Better training, supervision, increasing awareness, and providing risk education while still at school could address these causes [90]. According to the European Working Conditions Surveys (EWCS) young workers seem to be less well-informed about the risks in using certain materials, instruments and products than the average working population [91]. In Canada, only one out of five new employees received safety training during their first year of work [110]. In the US, half of the young workers did not receive relevant health and safety training at work [111]. Another Canadian study found a connection between injury prevalence and the size of company; working in a small company was considered an extra risk factor for young workers on account of insufficient safety training [112].

Three out of four young injury victims worked in part-time employment in Minnesota [113]. A study from the Netherlands indicated that young workers in the metalworking and construction industries who had flexible contracts and long working hours (more than 40 per week) had an increased risk of sustaining an occupational injury. Flexible and fixed-term contracts are however very common among young workers. In 2005, most temporary workers in the EU25 were people under 25 years; the percentage ranged from 6,8% in Ireland to 59,4% in Spain. In light of the results of the French national working conditions survey in 1998, virtually all the factors increasing the likelihood of a work-related injury are especially associated with young workers: lack of experience, little seniority in the position, often no job security, and also a different kind of employment structure. [91.]

Risk-taking behaviour is a typical characteristic of adolescents as they explore their capabilities, and is often associated with a lack of perception of their limitations and a sense of immortality [20]. In the United Kingdom, one out of six occupational injuries among young workers (aged 16–18) occurred outside the normal work – during breaks, horseplay, work without authorisation, or during commuting. These injuries were also more severe than those occurring during so-called normal work tasks. [114.] In addition, on-the-job substance use was positively related to the frequency of work injuries [105], and one fourth of the injured youngsters suffered ongoing medical problems [115].

Main points

- **In 2004, young people under the age of 25 were involved in 651 548 occupational non-fatal injuries in the EU15. Their proportion of all work-related injuries was 16%.**
- **Between 2002 and 2004, a total of 638 young workers died due to work-related injuries within the EU15. The proportion of this age group of all work-related fatalities was 9%.**
- **Young workers are more often involved in occupational injuries than older workers. Fortunately their injuries are less often fatal.**
- **More occupational injuries occur in young males than young females.**
- **Farms, construction sites, and manufacturing industries are the most hazardous working places for young people in Europe.**
- **For example, fast work pace, fixed-terms contracts, lack of experience, and working without supervision increase the injury risk among young workers.**
- **In addition, safety training of young workers can often be insufficient**.

3.1.4 Poisonings

In the WHO European Region, altogether 110 000 young people died and 2.1 million of DALYs were lost due to youth poisonings in 2002 [11]. In general, the risk of dying from poisoning is 17 times higher in low-income countries when compared to high-income countries in Europe. Alcohol is responsible for up to 70% of the poisoning deaths. [11.] Therefore, this section will deal mostly with alcohol poisonings among young people.

Young people aged 15–24 use alcohol more at a time than other populations [116]. Heavy alcohol use and especially binge drinking are associated with alcohol poisoning [117]. Boys are more likely than girls to engage in excessive drinking [118, 119].

Alcohol poisoning is caused by consuming high quantities of alcohol in a relatively short time period. Five per mils of alcohol in blood is fatal, however, lower levels can also be fatal especially among youths not accustomed to drinking alcohol. [120.] Other poisonings are caused by the intake of different toxins including harmful chemicals, pesticides, pharmaceuticals, and paraffin [11].

Fatal intoxications are sometimes difficult to define. It is not always obvious whether a fatal poisoning has been intentional or unintentional. Intoxication is a common suicide method and there are many cases in which it is not clear whether a person has intentionally poisoned herself with alcohol and/or drugs. [121.] Most young people with acute alcohol poisonings are not intentionally aiming to harm themselves, some are merely experimenting. However, many of the alcohol intoxication cases are an indication of further difficulties such as psychosocial problems, attempts of suicide, and/or continuing alcohol abuse and dependence. [122, 123, 124.]

Unintentional poisonings represent 6% of all unintentional injury deaths among young people aged 15–24 in the EU27 [1]. Mortality in poisonings for this age group was 1/100 000 in the EU27 in 2005. Males are three times more likely than females to die from poisonings. [1.] Most of the alcohol poisonings occur in the evenings and at night (between 5 pm and 9 am), and during the weekends [117, 122, 124].

Mortality in poisonings varies significantly across the EU27 (Figure P1). Estonia, Greece, Latvia and Finland have high mortality rates (4–15/100 000) while low rates are found in Portugal, Austria and Germany (0.07–0.6/100 000) [1]. In Estonia, mortality from poisonings is substantially higher than in

other countries (15/100 000). Poisonings decreased by 6% from 1999 to 2005 in the EU27; in Romania and Latvia the decrease was more than 60%. However poisoning mortality increased remarkably in some countries; in Germany, the Netherlands, Greece and Estonia the increase was more than 40%. [1.]

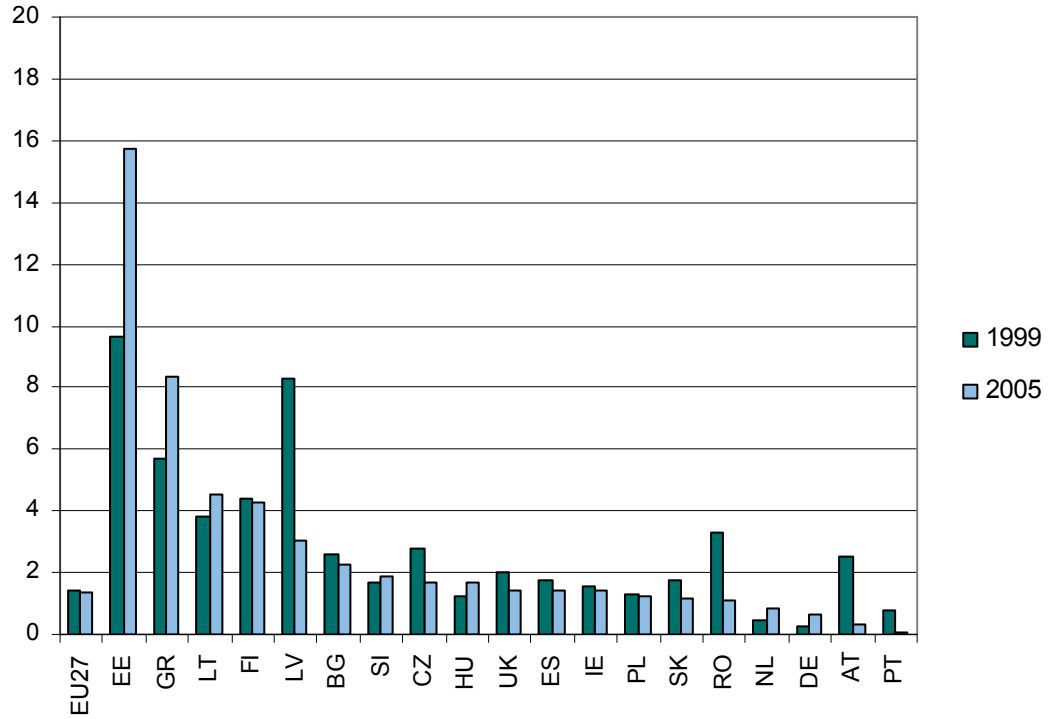

Figure P1. Death rates for unintentional poisonings among 15–24-year-olds in the EU27 and some other current EU countries in 1999 and 2005.
Source: Eurostat, population and social conditions [1].

The Baltic countries, Estonia, Latvia and Lithuania, have been in the lead of unintentional poisonings in the previous decade [1]. The figures might also be rising since, according to the HBSC-study results on the Baltic countries, alcohol drinking seems to have increased among adolescents aged 15 from year 1993 to 2002. Prevalence of drunkenness episodes has increased from 30% in boys and 15% in girls in 1993 to 52% and 36% in 2002, respectively. [125.] From 1999 to 2005 poisoning fatalities increased by 63% in Estonia and by 20% in Lithuania. The increase was more remarkable in young women [1]. In contrast, during the same period in Latvia, poisoning mortality among young people decreased by 63%, the decrease being more substantial in men (from 14/100 000 to 4/100 000) than in women (from 2,4/100 000 to 1,7/100 000) [1].

According to a review by Thomas et al [4] on young people's aged 15–24 risk-taking behaviour and injuries, young people's alcohol consumption is associated with a higher incidence rate for fatal and non-fatal injuries. Furthermore, young people have a higher risk for alcohol-related unintentional injuries than older age groups. Young men are more likely than young women to sustain an alcohol-related injury. Young people think that drinking alcohol is risky, and that it places them at a greater risk for injuries. This was considered to be due to the reduced perception of risks and impaired mental and physical reactions when drunk. Being sick after drinking alcohol was commonly reported, and it was not considered to be dangerous. [4.]

Young people's aged 12–24 drug use is associated with an increased risk of unintentional death [4]. However, those under 25 years are at a lesser risk than the next older age group i.e. those aged 25–34. The risk of dying due to drugs increases with the duration of drug use. More young men die from drug overdoses than young women, however, they also use more drugs. In fact, among drug users, women are at a greater risk of fatal drug poisoning than men. Those who used drugs did not think taking them is dangerous and preferred unofficial information on drugs over official messages about their possible harms. Young people who did not use drugs considered taking them risky, and said that the official media images of the dangers of drugs dissuaded them from trying drugs. [4.]

As the amount of research conducted on alcohol misuse is quite remarkable, the intention in this section has not been to provide a comprehensive review. There are several social and psychological factors that moderate youth alcohol drinking behaviour [126, 127]. For example, young people's alcohol problems tend to coexist with parental alcohol or drug problems [118, 128]. Drinking has been related to family wealth, and increased availability of alcohol in adolescent's environment may lead to misuse [125, 129]. High self-esteem or self-concept, good relations with a non-alcoholic parent or family member, internal locus of control, few stressful events in childhood, communication skills, sense of togetherness in the family [126, 127], mothers' educational level, and physical activity have been negatively associated with alcohol use [129]. Drinking is less prevalent in rural than in urban regions. Moreover, religious young people are more likely to abstain from alcohol than their non-religious peers. [130.]

Main points

- **The intent of fatal intoxications is sometimes difficult to define. Intoxication is a common suicide method.**
- **Poisonings represent 6% of young people's aged 15–24 unintentional injury deaths.**
- **Young people's drug and alcohol use is associated with an increased risk of unintentional death.**
- **Alcohol-related mortality varies significantly across the EU27; the highest mortality being in Estonia, Greece, Latvia and Finland and the lowest in Portugal, Austria and Germany.**
- **The risk of dying from poisonings is 17 times higher in low-income countries than in high-income countries in Europe.**
- **Males are three times more likely than females to die from poisonings.**
- **Young people aged 15–24 use alcohol more at a time than other population groups.**
- **Males are more likely than females to engage in excessive drinking.**
- **High self-esteem or self-concept, good relation with a non-alcoholic parent or family member, internal locus of control, few stressful events in childhood, communication skills, sense of togetherness in the family, mother's educational level, and physical activity have been negatively associated with alcohol use.**

3.1.5 Drowning injuries

Drowning is defined by WHO as "the process of experiencing respiratory impairment from submersion/immersion in liquid". Drowning outcomes are classified as death, morbidity, and no morbidity. [131.] Even though not all drowning injuries lead to death, many submersion victims are injured severely for life [132]. In the WHO's European Region, 38 000 young people died from drowning with nearly one million DALYs lost in 2002 [11]. In Europe, the rates between low- and middle-income countries and high-income countries vary widely [131]. The risk of dying from drowning is nine times higher in low- and middle-income countries when compared to high-income countries [11].

According to WHO, drowning mortality is highest in the age group of 45–59 in the European Region. Among young people aged 15–29, drowning mortality is the fourth highest compared to the other age groups in the Region. [11.]

Drowning injuries account for less than 5% of all unintentional injuries among young people aged 15–24 in the EU27 [133]. Young people's mortality from drowning was 1/100 000 in the EU27 in 2005. Fatal drowning injuries decreased by 24% from 1999 to 2005 in the EU27. Lithuania, followed by Estonia, Romania and Latvia have high rates for young people's drowning injuries in the EU27 (Figure D1), while low figures are found in Malta, Germany, and the United Kingdom. [133.]

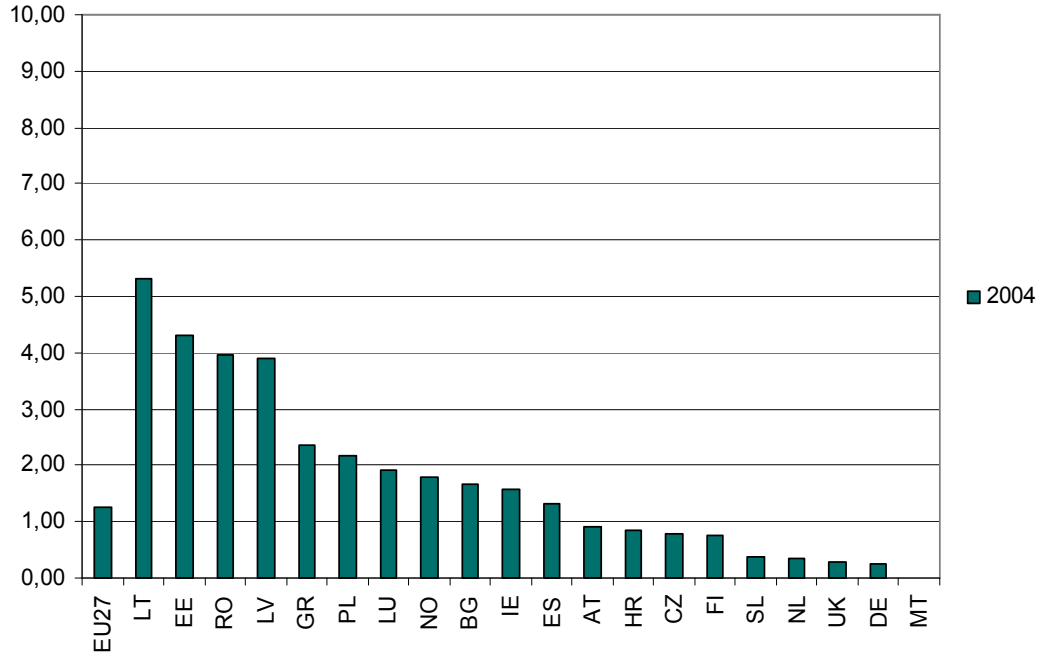

Figure D1. Drowning mortality (1/100 000) among 15–24-year-olds in the EU27 in 2004.
Source: data retrieved from WHO and processed by CEREPRI [134].

Most of young people's drowning injuries occur in open water sites, for which the percentage of fatal submersions is higher than for pools or bathtubs [134]. Young people's drowning injuries typically occur during boating or swimming [135, 136], weekends, and the warm months of the year [132, 137-143]. Many of these injuries are due to hyperventilation, which enables swimmers stay longer underwater. For this purpose, young people breathe deeply before diving, which may, however, result in loss of consciousness and subsequent drowning [132, 135, 137, 139, 144, 145].

Young men are more likely than young women to die or become hospitalised due to drowning injuries [11, 131, 133, 146]. In the EU27, young males' aged 15–24 drowning mortality is more than four-fold higher than in young females [133]. Studies indicate that males have higher drowning rates due to increased exposure to water, and due to riskier behaviour [11, 131, 145] such as swimming in natural bodies of water instead of swimming pools [145], swimming at night and boating without life-jackets [145], swimming alone [11, 131, 145], and drinking alcohol before swimming alone or boating [11, 131, 145].

Alcohol is associated with young people's drowning injuries [11, 131, 132, 135, 137, 146]. According to some estimates, every third drowning occurs while under the influence of alcohol [134, 137, 140]. Especially young males are at risk for alcohol-related drowning [11, 131, 134, 137, 140]. In addition, drug use and experiments [132, 135, 139] and peer pressure have been related to young people's drowning injuries [132, 135].

Other personal risk factors for drowning injuries include belonging to an ethnic minority and pre-existing diseases such as epilepsy [11, 146]. Environmental factors and weather conditions are also associated with drowning injuries. Access to water, i.e. exposure to unfenced pools or uncovered wells, and living near water, ditches, dams or lakes, are important factors contributing to drowning injuries [11]. Current weather conditions, such as low air and water temperatures, rip currents, offshore winds, ice cover, bottom surface gradient and stability, waves, impeded visibility, and inadequate equipment have been associated with drowning injuries [143].

Main points

- **Drowning injuries represent less than 5% of all fatal unintentional injuries among young people aged 15–24 in the EU27.**
- **Lithuania, Estonia, Romania and Latvia have the highest rates, Malta, Germany, and the United Kingdom the lowest in the EU27.**
- **Young men are more likely than young women to die or be hospitalised due to drowning injuries.**
- **Drowning mortality in young men is fourfold higher than in young women.**
- **Approximately every third drowning occurs while under the influence of alcohol.**
- **Most of young people's drowning injuries occur in open waters.**
- **The most common activities among young people leading to drowning injuries are swimming and boating.**
- **Drowning injuries are overrepresented during weekends and the warm months of the year.**
- **Other risk factors for drowning injuries include environment and weather conditions and pre-existing illnesses.**

3.1.6 Falls

There were 48 000 deaths due to falls in the EU27 in 2005 [147]. Mortality from falls is most common in the older age groups (65+) in the EU27 [133] (Figure F1). Morbidity from falls is particularly common in children and the elderly [11, 148-151]. Falls among elderly people is a well studied subject, however, little has been reported about young people's fall injuries [152, 153].

Young people's fall-related mortality is low. However, falls represent an important cause of morbidity and disability in young people [11], among whom a large part of these injuries occur in sports, during recreational activities, and at work [11, 153, 154]. The age group of 15–44-year-olds had the highest proportion of DALYs lost due to fall injuries as their share was nearly 50% of all DALYs lost due to falls in the WHO's Region of Europe. This is reflecting not only premature death but a longer period living with disability. [11.]

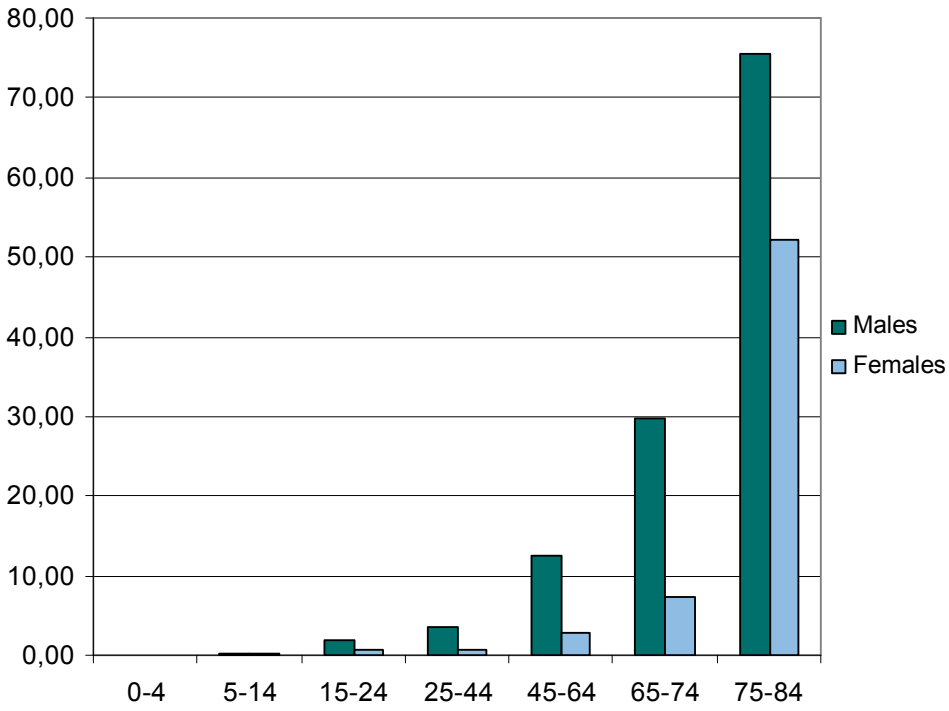

Figure F1. Mortality (1/100 000) due to falls in different age groups in the EU27 in 2005.
Source: data retrieved from WHO and processed by CEREPRI [133].

Falls are the major cause of morbidity for unintentional injuries at all ages [155, 156]. Men in low income countries are twice as likely as women to die from falls [11]. Moreover, alcohol and low socio-economic status have been associated with fall injuries [82].

Fatal unintentional falls constituted 4% of all unintentional injuries among adolescents aged 15–24 in the EU27 in 2005 (Figure F2) [1], and mortality among young people due to falls was less than 1/100 000. The mortality figures for young people are high in the Baltic countries, Estonia, Latvia, and Lithuania (2–3/100 000), and low in the Netherlands, Portugal and Hungary (0,2–0,4/100 000). [1.]

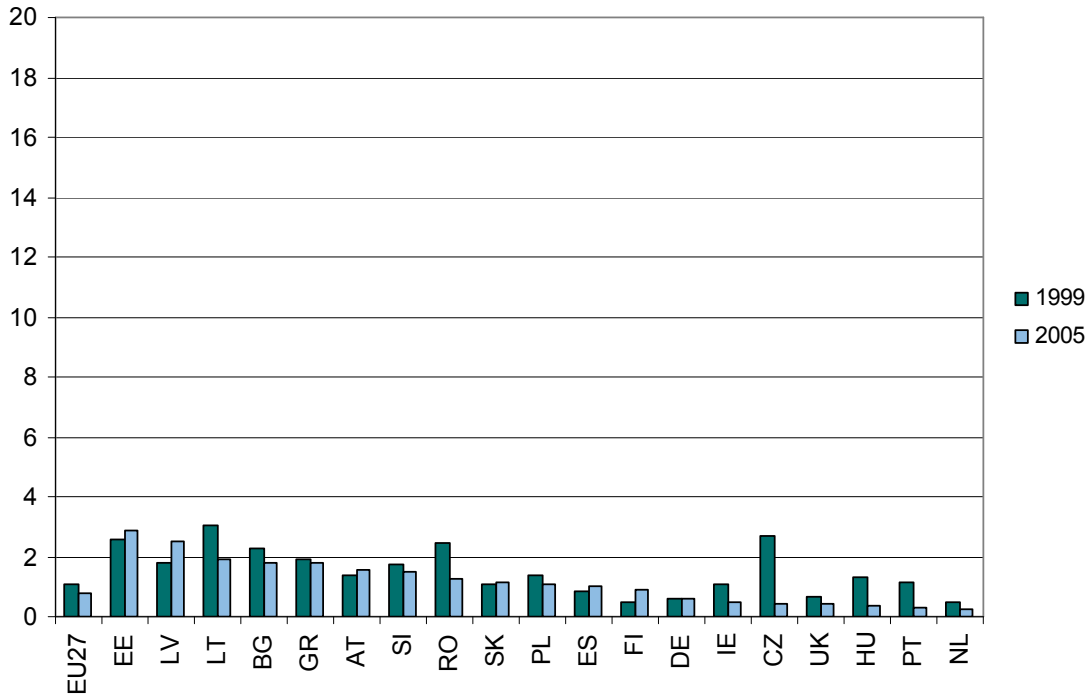

Figure F2. Mortality (1/100 000) due to unintentional falls among 15–24-year-olds in the EU27 and some other current EU-countries in 1999 and 2005.
Source: Eurostat, population and social conditions [1].

Many head injuries are due to falls [157, 158]. Especially cyclists and motorcyclists are at risk for fall-related head injury [159]. Some fall hazards at home include stairs [160, 161], absence of railings on stairs [160], and use of ladders [150, 160-162].

According to a comparative study of fall injuries among different age groups in the US young adults aged 20–45 are most likely to fall while participating in sports, exercise or running [153]. In this age group, fall injuries most often occurred outdoors, only 4% of the young adults' fall injuries happened at home. The most common injury locations were wrist, hands, knees and ankles. Young women reported more injuries than young men. [153.]

It is a well known fact that a sideways fall onto the hip can be very dangerous in elderly people [152]. However, sideway falls can be risky in young healthy adults as well. "*It has been estimated that only 1–2% of all falls leads to a hip fracture while in sideways falls onto the hip the risk for fracture is about 20 times higher*". [152.]

Main points

- **Mortality among young people due to falls was less than 1/100 000 in the EU27 in 2005.**
- **Fall-related mortality represents 4% of total mortality from unintentional injuries.**
- **Fall-related mortality is most common in the older age groups in the EU27.**
- **Young people's fall-related mortality is low, however, falls are an important cause of morbidity and disability in this age group.**
- **The Baltic countries have the highest fall-related mortality rates (Estonia, Latvia, Lithuania), the lowest are found in The Netherlands, Portugal, Croatia, and Hungary.**
- **A large part of young people's fall injuries occur in sports, during recreational activities and at work.**

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3.2 Intentional injuries

3.2.1 Violence

Violence is defined by the World Health Organization as "*the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation*" [1, page 5]. This definition includes interpersonal violence, self-inflicted violence and armed conflicts. Apart from fatal and nonfatal injuries the concept also includes psychological harm that is caused by threats, intimidations, sexual violence and dominating behaviour. Many of the victims of violence suffer from physical, mental, sexual and reproductive problems. Violence is also a burden for national economies, every year a remarkable amount of money is spent on health, law enforcement and lost productivity. [1.]

As a cause of death, violence is not very common among young people aged 15–24 in the EU27. Violence-related mortality is below 1/100 000 in most of the countries. Violent deaths constitute 2% of all young people's injury deaths. [2.] However, milder violence is more commonplace; studies on non-fatal violence indicate that for every youth violence death there are 20–40 victims of violence receiving hospital treatment. Up to one in five women report having experienced violence by intimate partner in Europe. Moreover, one in four women and one in 20 men in this age group report sexual assault in their lifetime. [1.]

Most of the theories that emphasise the impact of social and cultural aspects in violence share the basic premise that variations in violence are not solely attributable to individual characteristics but are modified by contextual factors related to the communities, neighbourhoods or special social groupings. These theories could be grouped into two categories: those that focus on the social structures of communities and those that highlight the importance of values. [3.]

Theories that focus on the social structure of communities accentuate the problems of low economic status, poverty, residential instability, and disorganisation. According to these theories the Eastern European countries going through a rapid societal change are more at risk for violence than the more stable Western European countries. [3, 4.] Theories highlighting the importance of values suggest that there are certain cultures in which violent behaviour is encouraged. A person belonging to a violent subgroup may have to prove his or her membership of the group by being hostile and violent towards

outsiders of the group. Consequently he or she is more likely to be either the perpetrator or victim of violence. [3, 4.]

This chapter presents a general overview of violence. Different types of violence, e.g. youth violence (incl. homicides and bullying), violence by intimate partners and sexual violence, are briefly introduced. European-wide comprehensive and comparable statistics on different forms of violence do not exist apart from mortality. However, statistics from different studies based on self-reports are represented.

Youth violence perpetration and victimisation

Young people tend to be victimised by other young people [1, 5, 6]. Furthermore, violence among youth can take many different forms, including bullying, gang violence, sexual aggression, assaults occurring in streets, bars and nightclubs, and homicides. Alcohol is a risk factor for both being a victim or a perpetrator of youth violence [4, 7]. Young people are much more likely than the population in general to become both victims and perpetrators of non-fatal violence [8]. The consequences of youth violence are far reaching, affecting the health and well-being of victims, relationships with family and friends, levels of fear within communities, and pressure on health and other public services [7].

Physical violence, bullying and victimisation

The rates of non-fatal violence tend to increase substantially from adolescence to young adulthood [1]. It has been estimated that for every violent death there are 20–40 hospitalisations due to violence in Europe. Most of the victims and perpetrators of youth violence are male. In non-fatal youth assaults, the use of fists and feet and weapons such as knives and clubs is frequent, while in youth homicides the use of guns is more common. [1, 9.]

The results from the international HBSC-study indicate that fighting and bullying are common among young people, as one third of adolescents at age 15 report having experienced each of them. One third of these youth also reported being victimised by violence [10]. Even though many of the young people are not personally involved in fighting or bullying, they are negatively influenced by the violent behaviour when they see it [10].

In the HBSC-study, more than 10% of the 15-year-olds reported involvement in physical violence in the EU countries. Boys reported being involved in a fight three times more often than girls. The involvement in physical violence was the highest in Lithuania and Estonia, where more than 40% of youth reported

involvement in physical fighting at least once in the previous 12 months, and about 17% three or more times. Portugal, Germany, Finland, Spain and Italy have the lowest levels of reported involvement in physical fighting. [10.]

Among 15-year-olds adolescents, 35% report that they have bullied in the previous couple of months. More boys (42,5%) report bullying than girls (27,4%). [10.] However, there are outstanding differences across the geographical regions of the EU with respect to the percentages of young people's reported bullying, victimisation and physical fighting (Figures V1–V3). Nonetheless, the between-country differences ought to be interpreted with caution, since violent behaviour might be differently sanctioned across the countries, and the diverse translations for the term "bullying" might also alter the results. Lithuania, Austria, and Latvia are in the top quartile in both bullying and being bullied, which implies that a notable number of young people are involved in bullying, either as perpetrators or as victims. Sweden and Hungary are in the lowest quartile in both reported bullying and victimisation, and Ireland and the Czech Republic have low percentages in reported bullying and also have percentages below the average in reported victimisation. [10.]

There are no considerable gender differences in reported bullying. On average, 27% of boys and 25% of girls reported being bullied at least once in the previous couple of months. More than 8% of girls and 10% of boys reported being bullied two times or more in the previous couple of months. However, there are substantial gender differences in fighting behaviour; the rates for boys are at least double those for girls. [10.]

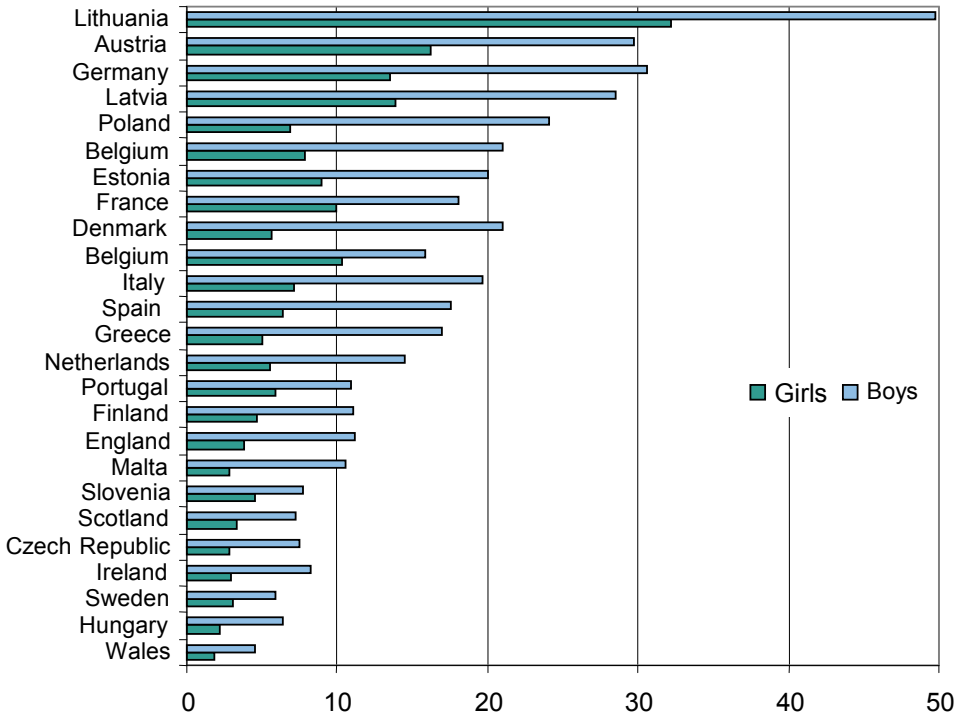

Figure V1. Young people at age 15 who bullied others at least once in the previous couple of months (%) in 2001/2002.
Source: Health behaviour in school aged children (HBSC) study: international report from the 2001/2002 survey.

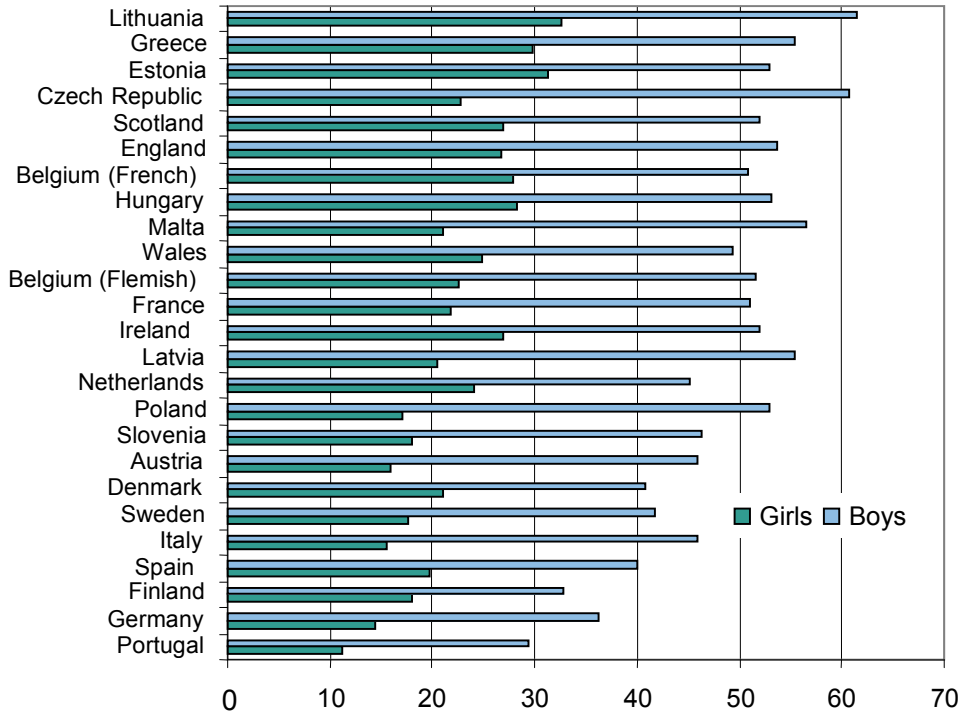

Figure V2. Young people at age 15 who bullied others at least two or three times a month in the previous couple of months (%) in 2001/2002.
Source: Health behaviour in school aged children (HBSC) study: international report from the 2001/2002 survey.

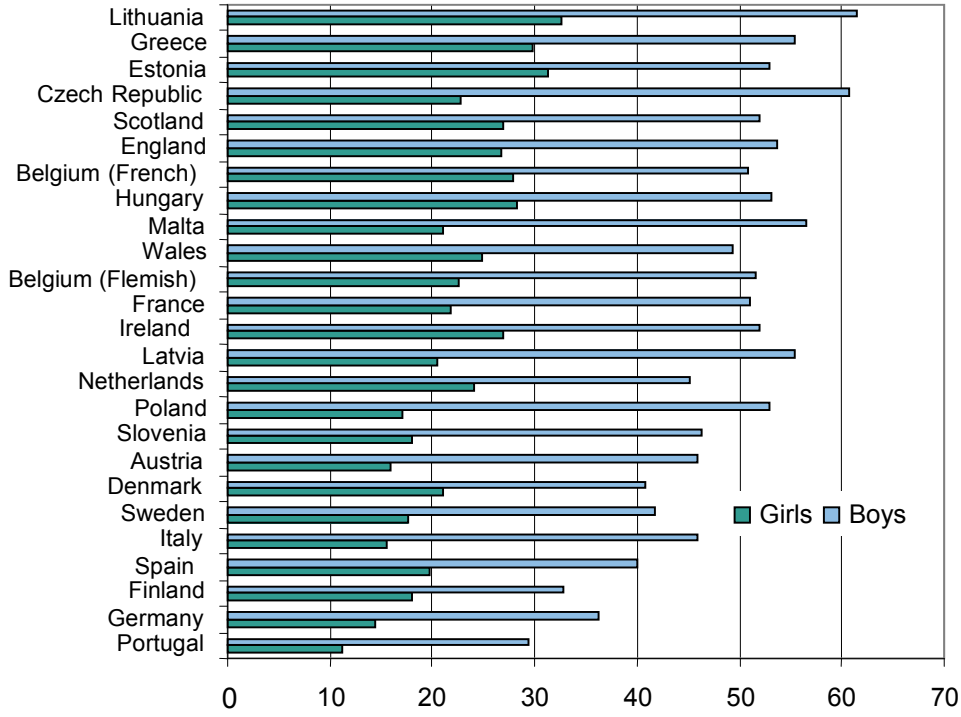

Figure V3. Young people at age 15 who were involved in physical fighting at least once in the previous 12 months (%) in 2001/2002.
Source: Health behaviour in school aged children (HBSC) study: international report from the 2001/2002 survey.

Homicides and assaults

In the EU27, mortality from homicides and assaults has declined by one third from 1999 to 2005 (Figure V4) [2]. However, in Slovenia and Spain there has been a considerable increase (over 40%). High mortality figures related to homicides and assaults are found in Lithuania, Latvia and Estonia (about 5/100 000) and respectively low figures are found in Ireland, Austria, Hungary and Germany (0.5/100 000 or less). [2.]

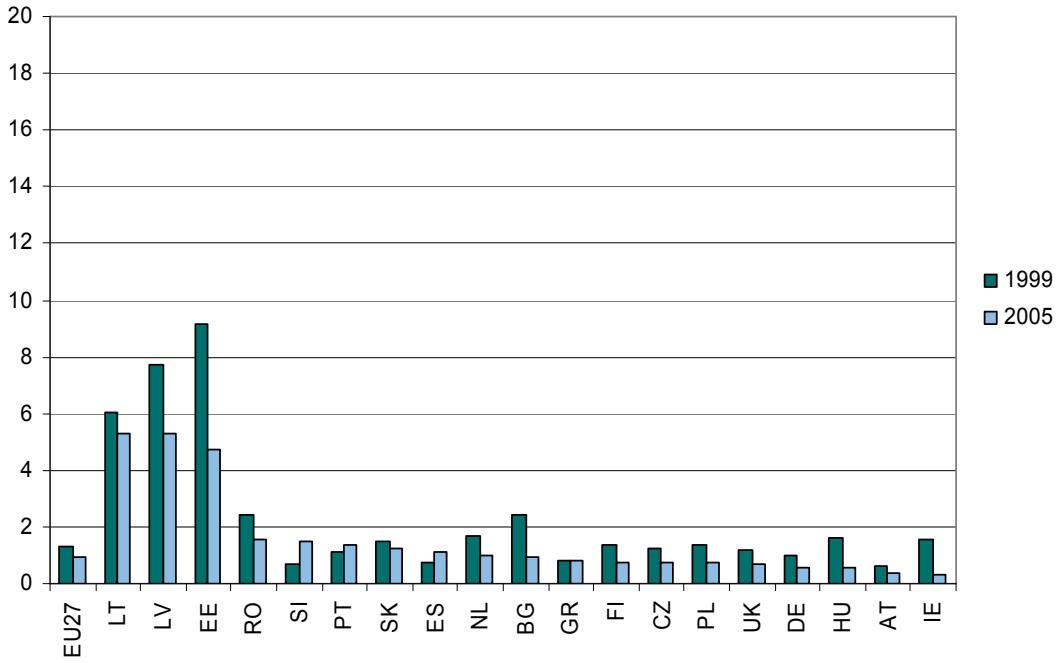

Figure V4. Death rates related to homicides and assaults among 15–24-year-olds in the EU27 and some other current EU-countries in 1999 and 2005.
Source: Eurostat, population and social conditions.

Males are much more likely to die violently than females in all the age groups [9]. In high-income countries, men have twice the risk of dying from homicide than women and three times the risk in low- and middle-income countries [11, 12]. Globally speaking, young men aged 10–24 have a substantially higher likelihood of dying from violence than young women. There is also considerably less between-country variation in young females' homicide-related mortality rates compared to those among young men. [1.]

After the collapse of communism youth homicide rates grew significantly in the former Soviet Union and Eastern Europe in the late 1980s and early 1990s [1]. In the meantime, the rates in Western Europe remained generally low and stable (less than 2/100 000). Youth homicides increased by more than 100% in the Russian Federation (from 7/100 000 to 18/100 000) and Latvia (from 4/100 000 to 10/100 000) from 1985 to 1994. During the same time period youth homicide rates increased in the United Kingdom by 40% and in France by 30%. In Germany, an increase of 13% was seen from 1990 to 1994. [1.]

Violence by intimate partners

Violence by intimate partners is defined by the WHO as "*any behaviour within an intimate relationship that causes physical, psychological, or sexual harm to those in the relationship*" [1, page 89]. Violence by intimate partners includes psychological, physical and sexual violence that is exercised by the current or former partner. Profound research has been published only quite recently. Until then, no other grave public health problem has been neglected and misunderstood so largely. [13.]

Most of the victims of intimate partner violence are women [1, 9]. One in five women in Europe reports having experienced violence by an intimate partner [9]. According to American and Canadian studies of young people aged 15–20, one fifth of the respondents had been involved in a relationship in which they had experienced violence [14, 15]. Women living in low- or middle-income countries in Europe are 10 times more likely to die violently than their counterparts in high-income countries [9]. Mortality rates from intimate partner violence in Europe are highest in the Baltic countries and the Commonwealth of Independent States[11] and lowest in the Nordic countries and Western Europe [11].

Intimate partner violence is different in character when compared to other types of violence [16]. A distinctive feature of interpersonal violence is that it occurs in an intimate space, with no third parties being present. In such intimate space, invisible to others, opportunities grow for interpersonal violence. Normally, there are no other witnesses except for family members. In addition, persons experiencing interpersonal violence need to face the mixed feelings of shame, loyalty, love, fear, self-blame and guilt. [16.] Interpersonal violence can remain hidden even though it has been occurring over a long period of time [9].

The consequences of intimate partner violence are large, extending from physical and mental well-being of the victim to the total well-being of entire communities. Research has shown that the abused women have restricted access to help-seeking services and information, and obstructions to participation in public life and receiving support from friends and relatives. In addition, violence has been linked to both immediate and long-term adverse health outcomes. Violence increases a woman's risk for injury but also her risk of future ill health, e.g. chronic pain syndromes, infertility, depression and anxiety. [1.]

[11] Includes following countries: Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Uzbekistan and Ukraine.

Sexual violence

Sexual violence is defined by the WHO as "*any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work*" [1, page 149]. Sexual violence includes date rape, sexual coercion in marriage, sexual harassment, rape by strangers, child sex abuse, systematic rape during armed conflict and coercion of boys by women [1].

Sexual violence seriously affects the mental and physical well-being of the victim [1, 9]. Young people especially are at risk for sexual violence [1, 9]. Young women are more likely than young men to be victims of sexual violence [17-19]. One in four women and one in 20 men report sexual assault during their lifetimes [1, 9]. One in three young women reports forced sexual initiation. Rape statistics underestimate the size of the problem [1]; studies show that only 5–25% of the cases are reported to the police [9]. Many of the women who experience physical violence also experience sexual violence [1].

Males are more likely to be the perpetrators of sexual violence regardless of the gender of the victim [1, 9]. Young people tend to underestimate violence that they have experienced and describe it as 'normal behaviour' [14].

Sexual exploitation and trafficking of women is a significant problem in some countries in Europe [9]. A considerable amount of sex workers in Europe, many of them originating from Central and Eastern European countries, are victims of sexual trafficking. Most of the victims of sexual trafficking are less than 25-year-olds. [1, 20.]

Besides psychological and physiological strain, victims of sexual violence are also more exposed to sexually transmitted diseases (STDs) than non-victimised persons [1]. Vaginal abrasions and tears increase the likelihood of disease transmission [19]. Unwanted pregnancy is another consequence of rape; up to one in six of raped women aged 12–45 becomes pregnant [9].

Risk and protective factors for violence

Risk and protective factors for youth violence

Children who have experienced violence in their childhood homes are more likely to become victims or perpetrators of violence than those who have not been exposed to such environments [9, 12, 16, 21, 22]. Therefore victimisation and perpetration of violence can be seen as closely related.

There are different biological, psychological and behavioural characteristics that are connected with young people's potential for violent behaviour [1]. These factors may be influenced to a varying degree by the person's family and peers, and other social and cultural factors. *Biological* factors, such as delivery complications at birth, have been associated with violent behaviour at a later age. Of the *psychological* and *behavioural* characteristics, hyperactivity, impulsiveness, poor behavioural control, attention problems, low intelligence, and low levels of school achievement have been associated with youth violence. [1.]

Protective factors against interpersonal violence include good and secure family connectedness, emotional well-being, doing well at school, and feeling connected to school [5, 16, 21, 23-25]. In a family, dialogue and open line communication are important factors in protecting young people from anti-social behaviours [24]. Peer groups can offer both protective and risk factors for adolescents' involvement in physical aggression. Protective factors include friends' control, self-regulatory efficacy, compatibility between friends and parents, and the model of behaviour exhibited by friends. [24.] Having delinquent friends may increase the risk of being involved in violence [1, 6, 9]. Other family factors making young people more likely to involve in violence are poor parental supervision, harsh parental physical punishment, parental conflict, large number of children in the family, young age of the mother, and poor family cohesion [1, 6].

There are prevailing socio-economic differences; children from families with low income and low socio-economic status tend to have more intentional injuries than children from wealthier families [1, 6, 26]. Also, the social environment has been found to be associated with the prevalence of violence and crime [6, 9]. A neighbourhood characterised by unemployment, drug use, easy access to firearms, crowded housing [5, 9] and poverty [5] may encourage young people to engage in violence. Other structural factors of society related to young people's higher likelihood of violence include presence of gangs, guns and drugs, availability of alcohol, poor social integration, rapid demographic change in youth population, modernisation and urbanisation, income inequality, weak governance, and culture that

supports violence. [1.]

Use of alcohol and drugs [5, 12, 27, 28, 29], tobacco use, stress, feeling irritable and having been previously bullied, [12, 23, 28, 29], history of violence as perpetrator or victim [9], harsh discipline, family aggression, and lack of parental supervision [5, 27] have been associated with violent behaviour. Furthermore, anti-social and aggressive behaviours at an early age have been found to predict criminal and violent behaviour in adolescence and adulthood [5].

Schools can offer both protective and risk factors for physical aggression. Students satisfied with both their school experience and relationships with teachers, and also motivated to continue educational career are less likely to engage in physical aggression [24, 28]. Factors increasing the likelihood of engaging in physical aggression include repeated school years and intentions or attempts to drop out of school [24].

Risk factors for violence by intimate partners

Family risk factors for *perpetration* of violence against women include a history of violence in the family, poor parenting [9], or witnessing abuse of the mother [9, 11]. The personality and personal history factors associated with violence include young age [1], low self-esteem, jealousy, early romantic involvement, need of power, low social status, general sexual activity, frequency of dating experiences [14, 15, 30, 31], poor educational attainment, harmful use of alcohol and substance [1, 9, 11, 14, 15, 30, 31], low income [9], and discord in relationships [9]. Some environmental and structural factors, e.g. living in a poor or densely populated area, and having easy access to firearms and alcohol, have been found to be associated with violent behaviour [9].

Risk factors for *victimisation* in interpersonal violence include young age, low income, history of sexual violence, and having multiple sexual partners. Sexual or physical violence in childhood is a risk factor for intimate partner violence later in life. [1, 11.]

Young people involved in *bullying* are more relationship-oriented than their peers; however their view of their partners is more negative than that of their peers. Bullies have a higher risk of developing unhealthy romantic relationships. [16.] Furthermore, experience of family violence increases adolescents' likelihood of being either the perpetrator or the victim of dating violence [32]. Experiencing dating violence, or other forms of unhealthy relationships in adolescence, predicts a risk of similar involvement in the future [33].

Risk factors for sexual violence

Risk factors predicting sexual violence are partly the same as those predicting intimate partner violence [1, 3]. "*There are factors increasing the risk of someone being coerced into sex, factors increasing the risk of an individual man forcing sex on another person, and factors within the social environment – including peers and family – influencing the likelihood of rape and the reaction to it*". The factors have been shown to have an additive effect so that the more frequently they occur, the greater is the likelihood of sexual violence. [1.]

Young women are more at risk for rape than older women. Factors increasing young women's risk of being a victim of sexual violence include alcohol and drug consumption, history of sexual violence, multiple sexual partners, involvement in sex work, and poverty. [1, 9.]

Men who commit sexual violations are more likely to have witnessed family violence and to have had distant, uncaring fathers [9]. A childhood environment characterised by physical violence, lack of emotional support and competition for scarce resources has been associated with sexual violence and poverty [9]. Other factors that increase males' likelihood of committing sexual violence include alcohol and drug use [1, 9].

Social environment significantly moderates the likelihood of sexual violence [1]. Community tolerance for sexual violence, societal norms around the use of violence, belief in men's entitlement to sex and subservience from women, rigid gender roles and occurrence of other forms of violence are associated with sexual violence [1, 9].

Alcohol and violence

In the WHO European Region, young people aged 18–24 are more likely than the general population to engage in heavy episodic drinking [34]. Alcohol drinking cultures vary in the European Region; there are significant differences of drinking patterns between Northern and Southern countries. High rates of explosive drinking are found in countries like Finland, Sweden, the United Kingdom and the Russian Federation, while in Southern European countries, drinking is part of everyday family life. The prevalence of alcohol-related violence also varies between countries, altogether on average 3,6% of males report involvement in violence after drinking alcohol in Finland, France, Germany, Italy, Sweden and the United Kingdom. However, the percentages ranged from 1% in Italy to 8% in the United Kingdom. [35, 36.]

Use of alcohol is associated with youth violence [4, 7]. However, the relationship between alcohol and violent behaviour is complex, and it is moderated by various factors in the individual and the environment [10, 37, 38]. Alcohol use is associated with young people's violent behaviour [1, 9, 34, 35, 39, 40]; it is more common for young adults than for other people to have been drinking prior to a non-fatal violent occasion, regardless whether they are the perpetrators or victims of the violence [38].

Especially binge drinking, i.e. drinking large quantities of alcohol at a time [40], high levels of alcohol consumption, and frequent drinking are associated with an increased likelihood of being involved in violence [8, 28, 34, 40-44]. Nevertheless, drinking affects genders differently. It is more likely for men who indulge in heavy drinking to behave violently. [34, 38, 39, 44.] Having alcohol drinking peers increases adolescents' risk of involvement in alcohol-related violence [41, 45]. Those who start to drink at an early age are at increased risk of alcohol-related violence [41, 46, 47].

Certain drinking venue environments have been associated with increased violence. The drinking venues associated with violent behaviour are characterised with heavy drinking [45], poor equipment and discomfort, e.g. poor ventilation, crowdedness, noise and uncleanliness, and are permissive towards anti-social behaviour [43, 48]. The high level of sexual competition among the patrons of bars and clubs has been found to be associated with increased sexual violence [49]. Crowded gathering places, e.g. grills and taxi queues, are often the venues for violence. Unavailability of public transport, bar and nightclub crowdedness, and people hanging on the streets after closing time are found to be factors increasing the possibility of violence. [50, 51.]

Gender and violence

In patriarchal and macho cultures, male domination over women is emphasised. Within this cultural frame, men are socialised into a more aggressive role than women. Violence is considered to be primarily a masculine trait; men are considered to be 'naturally' more violent than women. [16, 52, 53.] "*Violence and masculinity are contextual, and it is important to guard against an over-concentration or potentially essential link between marginalised young men and violence*" [53, page 21].

In Western societies, violence is defined by power and domination. By being violent a man is manifesting his power over women and other men. [52.] It is considered to be attractive and normative for boys to show their physical strength [24, 53], thus by physical aggression a boy is showing that he is a 'real man' [52]. At the same time, girls' overtly violent behaviour is seen as something strange and unacceptable [52].

Young men are often seen to represent the problem category in violence [53, 54]. However, as stated above, the perpetrators of violence are often simultaneously the victims of violence too [53]. Aggressive and violent behaviours are regarded more acceptable for boys [52], and boys also tend to exhibit more externalised behaviours, such as physical aggression, theft, vandalism, lies and disobedience [24]. Girls who fight are described as mad, and their fighting is not considered to be 'real fighting' but 'just scratching and pulling of hair', i.e. fighting in which nobody gets hurt. However, girls can be covertly very aggressive and violent. Verbal and psychological violence is regarded as a typically feminine feature. [52.]

Main points

- **Young people's aged 15–24 mortality from violence is below 1/100 000 in most of the countries in the EU27**
- **Studies on non-fatal violence indicate that for every youth violence death there are 20– 40 victims of violence receiving hospital treatment.**
- **Violence among youth can take many different forms, e.g. bullying, gang violence, sexual aggression, assaults occurring in streets, bars and nightclubs, and homicides.**
- **Young people are much more likely than the general population to become both victims and perpetrators of non-fatal violence.**
- **Young people tend to be victimised by other young people.**
- **Rates of non-fatal violence tend to increase substantially from adolescence to young adulthood.**
- **Perpetrators of violence are often simultaneously victims of violence too.**
- **Alcohol is a risk factor for both being a victim or perpetrator of violence.**
- **Males are more likely than females to be perpetrators or victims of interpersonal violence. Young men are also more likely than young women to die from violence.**
- **Most of the victims of intimate partner violence and sexual violence are women.**
- **There are different biological, psychological and behavioural characteristics that are associated with young people's potential for violent behaviour. These factors may be influenced to a varying degree by the person's family and peers and other social and cultural factors.**

3.2.2 Self-directed violence

Suicidal behaviour is defined by WHO as ranging "*in degree from merely thinking about ending one's life, thoroughly developing a plan to commit suicide and obtaining the means to do so, attempting to kill oneself, to finally carrying out the act*" [55, page 185]. Suicidal behaviour includes self-directed harm that does not necessarily lead to death [1]. It is sometimes hard to define whether an injurious death is intentional or unintentional. Often suicides and undetermined injuries, i.e. injuries in which it is unclear whether the injury was accidentally or purposely inflicted, are studied together.

Inter-country comparisons are limited to some extent because of the varying practises in the definition of intentional injury and the stigma suicide may have [9]. Every person who kills him/herself leaves behind mourning relatives whose lives are profoundly affected emotionally, socially and economically. Globally speaking, the costs of self-inflicted injuries are estimated to be billions of US dollars a year. [1.]

In this section, we present a general overview of self-directed violence among young people in the EU. Young people's suicides and self-harm in the EU27 are introduced along with the available statistical information. In the last subsection, risk factors for suicides and self-harm are reviewed.

Suicides

Suicide ranks as one of the leading causes of death among young people in Europe [55, 56]. In the EU27, suicides also rank as the second most common cause of death after unintentional injuries among young people aged 15–24 [2]. In the EU27, the overall suicide mortality among young people is 7/100 000 (Figure V5). Lithuania, Finland, Estonia and Latvia have high suicide figures (15–21/100 000), and the low rates are found in the Southern European countries, Greece, Portugal and Spain (2–4/100 000). In Finland the rate of suicide mortality among young people aged 15–24 (15/100 000) is nearly as high as for all unintentional injuries combined (17/100 000). Suicide mortality decreased in the EU27 by 15% from 1999 to 2005. [2.] Mortality from suicides is 2.5 times more prevalent in the low- and middle-income countries than in the high-income countries in Europe [9].

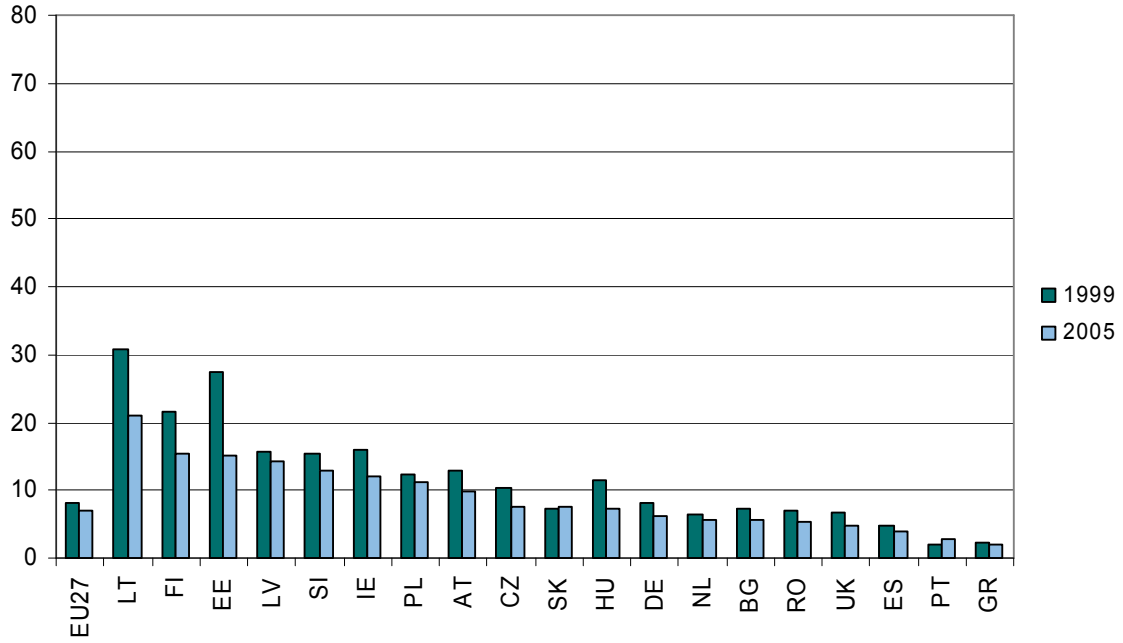

Figure V5. Death rates related to suicides and intentional self-harm among 15–24-year-olds in the EU27 and some other current EU-countries in 1999 and 2005.
Source: Eurostat, population and social conditions [2].

Male suicides are more common than female suicides at all ages [1, 2, 9], with young and middle-aged males being especially at risk [55]. Suicide mortality rate is fourfold higher for young men aged 15–24 when compared to young women in the EU27 [2]. One explanation for the gender differences is men's higher likelihood to have multiple risk factors such as comorbid mood disorder, aggressive behaviour and alcohol abuse [57]. Men also choose more lethal methods of suicide and therefore have higher mortality from suicides than women [9, 57-61].

Suicide methods vary between different countries [1]. In the US firearms are used in two thirds of the suicides. Elsewhere in the world, hanging is more common, followed by use of guns, jumping from high, and drowning. [1.]

It is hard to give exact predictors and biological correlates for those young people who commit suicide [62]. Most importantly, suicide is such an uncommon event that it is difficult to linearly relate it to anything [63]. The vast majority of young suicide completers do not have a history of suicide attempts [61, 63].

The trigger for a young person's suicide attempt can be an unfortunate event, such as relationship breakdowns, interpersonal problems or financial difficulties [61, 64-66]. Moreover, many of the suicide attempts are committed under the influence of alcohol [58, 59].

More than half of the young people who intend to commit a suicide have talked about their intentions with someone [58, 61, 67, 68]. However, only one third of suicide victims have been in contact with psychiatric care during their lifetime [59]. This suggests that there is a communication gap between adult generation and young suicide attempters [61, 64, 68]. Especially boys are more likely to talk about their suicidal intentions only with their peers [61].

Self-harm

Deliberate self-harm (DSH) consists for example of self-cutting, self-poisoning, burning, overdose, alcohol use, jumping from high, and hanging [69, 70]. Among 15–44-year-olds, self-inflicted injuries rank as the sixth leading cause of ill-health and disability globally [1]. DSH is relatively common in youth, in the United Kingdom up to 14% of young people aged 15–19 report having self-harmed [71]. Young women are more likely than young men to self-harm [9, 70].

Some of the motives young people themselves have given for self-harm include wanting to have a relief of a terrible state of mind [69, 71, 72], a will to die [69, 71] and a will to show the despair one is experiencing [69, 71, 72].

Factors related to self-directed violence

Suicides

Factors associated with suicide can be divided into *psychological, biological, social and environmental* factors [1, 9], and factors related to *personal history* [1]. Among the psychological factors are major depression [1, 9], other mood disorders [1], schizophrenia [1, 9], anxiety [1, 9], conduct and personality disorders [1, 9], impulsivity [1, 9] and sense of hopelessness [1, 9]. Psychosocial factors that have been associated with protection against suicide include supportive networks and adequate coping abilities [55].

Deviant behaviour, i.e. anti-social behaviour, alcohol abuse or dependence and depression, is common among young people who commit suicide [61, 68, 73]. Depressed adolescents have elevated rates of both suicide ideation and suicide attempts. However, the majority of depressed young people do not develop suicidal behaviour [74].

Comorbid psychiatric conditions, especially depression together with anti-social behaviour, increase the risk of suicide. In psychological autopsy studies it has been found that a majority of suicide victims have at least one psychiatric diagnosis, e.g. mood disorder, comorbid adjustment disorder, disruptive disorder, anxiety disorder, any substance abuse, schizophrenia, or eating disorder. Furthermore, comorbidity of mental disorders is common. [61, 68.] Comorbidity is commonplace especially among young suicide victims with alcohol abuse or dependence, depressive disorder and anti-social disorder [61]. Adolescents who have mood disorders together with substance abuse have a 50-fold higher risk for suicide when compared to other young people [63]. It is typical for men to be anti-social and for women to have more mood and psychiatric disorders prior to suicide attempt [61, 68].

Suicidal behaviours co-occur almost always with other health risk behaviours such as binge eating and drinking, tobacco and drug use, weapon carrying [59, 60, 63, 65], and having unprotected sex [57, 75]. Common risk factors for suicidal behaviour are poor parent-child relationship, poor child-school connection [64], low parental supervision, and affiliations with deviant peer groups [58, 61, 76]. The friends of suicide attempters tend to have a higher level of suicidal behaviour than other young people [77, 78]. Furthermore, the friends of suicide attempters are more likely to indulge in other risk behaviours, such as smoking cigarettes and marijuana, binge drinking, and violence [78].

Family history of suicides has been associated with an elevated suicide risk [1, 64, 74]. This suggests that there is a genetic trait that predisposes some people to suicide [1]. Another *biological* factor found to be associated with elevated suicide risk is a low level of serotonin [1]. Serotonin is a hormone that controls mood and aggression. Some studies have indicated that the impaired functioning of neurons that contain serotonin in the prefrontal cortex of the brain may predispose certain persons to suicidal behaviour. Also certain severe illnesses, especially if they are disabling, have been associated with suicides. [1.]

Some life events are associated with young people's suicides. Especially personal losses [9, 61, 66, 68], interpersonal conflicts [9, 68], broken or disturbed relationships [9, 61, 68], legal or work-related problems [9, 66, 68], childhood sexual abuse [1, 74], being bullied [1, 9], feelings of isolation [1], and violence victimisation [9, 58, 63, 68] have been found to be associated with young people's suicides. Many of the young suicide victims are neither in school nor working at the time of the suicide attempt [64].

Previous attempts of suicide [59-61, 68, 79] and having a family member or a friend attempt or complete suicide are significant factors in predicting youth suicide [74]. About one third of the suicide victims have had a previous suicide attempt, girls more than boys [60, 61, 68].

Parents' mental well-being affect strongly their children: parental depression, substance abuse [60, 74], anti-social behaviour, and violence are associated with children's higher suicide rates and suicide attempts [57, 58, 74]. Not living with both biological parents is a significant risk factor for completed suicide [57, 60, 64]. On the other hand, good school success, emotional well-being and parent-family connectedness have been found to protect against suicidal behaviour [57, 74, 76, 80].

Other risk factors include affiliations with delinquent and substance using peers, problems at school, and low school achievement [58, 63, 74]. Furthermore, gay and lesbian youth are more likely to commit suicide than their heterosexual peers; the risk is high especially for gay boys [76].

Several studies have identified certain *social and environmental factors* that are related to suicides. These diverse factors comprise availability of the means of suicide, place of residence, employment or immigration status, religious affiliations, and economic conditions [1, 9]. Furthermore, suicide mortality is higher in rural areas [9]. Suicide risk is higher for young people from families with low socio-economic status [61, 68, 73].

Use of alcohol and drugs is associated with suicides [1, 9]. Alcohol- and drug-positive young people have higher suicide mortality rates than other young people [60]. The variation between European countries in suicide mortality can be explained by some cultural factors [81]. In the 'dry' drinking cultures[12], i.e. societies with low per capita alcohol consumption, the suicide rates are affected by a rise or decline in the overall alcohol consumption. In the wet drinking cultures, i.e. societies with high per capita consumption of alcohol, the influence of alcohol consumption is not that pronounced. Typical dry drinking cultures, e.g. Finland, Sweden and Norway of the Nordic countries, have a low per capita alcohol consumption, high alcohol consumption during weekends, and a restrictive alcohol policy. Southern European countries are typically wet drinking cultures; alcohol consumption is high in these countries and the use of alcohol is distributed evenly during the weekdays. Countries with wet drinking cultures also seldom have a strict alcohol policy. Central European countries are cultures representing

[12] 1) Northern Europe, 'dry cultures': Finland, Norway, Sweden, 2) Central European countries, "medium consumption cultures": Austria, Belgium, Denmark, Ireland, the Netherlands, the UK and West Germany, 3) Southern European countries, "wet cultures": France, Italy, Portugal and Spain.

medium alcohol consumption. Suicide rates for men and women are positively affected by a rise in the overall levels of alcohol consumption in Central and Northern Europe, however, no significant difference was found in Southern Europe. [81.]

Especially young people's aged 15–34 suicide rates are associated with changes in overall alcohol consumption in Central and Northern Europe: the higher the level of consumption, the higher the suicide rates. Furthermore, it was found that female abusers of alcohol are more likely than male abusers to commit suicide when compared to young women and men in general. [81.]

Aggression might contribute to suicidal behaviour. Violent adolescents, e.g. young people with conduct disorder, can be suicidal without being depressed. Conduct disorder patients are also often referred to court for their violent behaviour. [82.] Moreover, risk factors for suicides and accidents are partly overlapping: adolescents who die from suicides or accidents have elevated levels of aggressive personality factors, mainly spontaneous and reactive aggression and excitability. It is also common for victims of both of these injury types to suffer from borderline personality disorder, have characteristics of a sociopath, and be drug abusers. [63.]

Self-harm

Suicide and self-harming are often closely related [70]. Risk-factors for self-harm are similar to those for suicide [71, 83]. Moreover, similar to those who commit suicide, young people who self-harm are often going through a period of interpersonal crises, e.g. loss of a partner, or running away from home [71], and are experiencing more life problems, such as problems in their relationships with friends or partners [69, 71, 84], difficulties or disputes with parents or siblings [69, 71], being bullied at school [69], or trouble with the police [69]. Those suffering from DSH have poorer coping strategies, and they deal with the problems in a less constructive way, for example, by blaming themselves, getting angry, staying in their room, or having an alcoholic drink [69].

Other factors found to be associated with self-harm include depression [70, 71, 83], previous self-harm [70, 71, 84], a will to have a relief from a terrible state of mind [70], disturbed family relationships [70, 71], negative attitudes towards life[70], parental mental health problems [70], chronic psychosocial problems and behaviour disturbance [71], physical ill health [71], low self-esteem [70, 71], sexual problems [71], alcohol use [71], high suicide intent [84], drug abuse [70, 71, 83] and awareness of self-harm by friends or family [71]. Acute psychiatric consultation for DSH has been found to be associated with parish characteristics, particularly with high concentration of female-headed poor families, social recipients and low-income people [85].

Main points

- **Self-directed violence includes suicides and self-harm not necessarily leading to death.**
- **Of all death causes among young people aged 15–24 suicides are the second most common cause of death in the EU27.**
- **Young males' suicide mortality is fourfold higher than that of young females in the EU27.**
- **One third of suicide victims have had previous suicide attempts.**
- **Many of the suicide attempts are committed under the influence of alcohol.**
- **Self-harm consists for example of self-cutting, overdose, alcohol use and hanging.**
- **Risk factors for suicide can be divided into psychological, biological, social and environmental factors and factors related to personal history.**
- **Depression and other psychiatric disorders have been found to be associated with young people's self-directed violence.**
- **Self-directed violence co-occurs almost always with other health risk behaviours.**
- **The trigger for a young person's self-directed violence can be an unfortunate event, such as a relationship breakdown, interpersonal problem and financial difficulty.**
- **Other factors associated with self-directed violence include unsupportive family environment, previous attempt of suicide, family history of suicide, affiliations with deviant peer group, binge drinking, being bullied, feeling of isolation, and being victimised by violence.**

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4. Policies for reducing injuries and injury risks among young people

The aim of this chapter is to present some relevant, ongoing policies and strategies to prevent injuries and violence among young people. First, the main elements of the European policies (e.g. WHO, EU) are presented (4.1). Second, the results of the Focal point survey concerning national policies for reducing injuries among young people are analysed (4.2). In addition, some examples of national policies are presented.

4.1 European policies

The term 'policy' is generally interpreted as being "a written document that provides the basis for action to be taken jointly by the government and its non-governmental partners" [1].

There are numerous different policies which also include issues focused on preventing injuries and risk-taking behaviour among young people. However, there exists no special youth injury prevention policy at the European level. Therefore, the more general European policies on reducing and preventing injuries have been reviewed and presented here. Both WHO and the European Union have identified mostly the same general, key elements necessary for policies aimed at reducing injuries and injury risks [2-5]. In addition, specific policies exist, for example, for violence prevention [6], for youth road safety [7] and for child and adolescent health [8], which are not presented here with details.

The proposal for a *Council Recommendation* [3] was adopted by the European Commission and by the European Parliament in 2006. Safety of children and adolescents is one of the proposal's key priority areas for action. The Council Recommendation addresses the EU Member States on the prevention of injuries in three domains: the Member States should 1) develop national *injury surveillance and reporting systems* to provide comparable information, monitor the evolution of injury risks and effects of prevention measures over time, and assess the needs for introducing additional initiatives on product and service safety; 2) set up *national plans* of action to prevent accidents and injuries, initiate interdepartmental co-operation and increase funding opportunities for campaigning actions, promote safety, and implement such national plans into practice with a particular attention to children, elderly people and vulnerable road users, and with special regard to sports injuries, injuries caused by products and services, violence, and self-harm; and 3) ensure that injury prevention and safety promotion are introduced in a systematic way through vocational *training of health care* professionals so that these groups can serve as competent advisors to their patients, clients and the public.

The major directions for injury-related actions are provided by *the Communication on "Actions for a Safer Europe"* [2], which presents the state of play with respect to the injury issue and suggests actions for the EU Member States. The Communication highlights the importance of community-wide injury surveillance, exchange of good practice, network of stakeholders, capacity building, support of national action plans and risk communication.

The *Regional committee of WHO Euro* proposes a way forward to decrease the burden of injuries in the European Region [4]:

- Develop multisectoral approach, encourage the health sector to take a coordinating role, development of national action plans.
- Develop a comprehensive and coordinated policy response. Identifying the main building blocks of a well integrated response, which consists of identifying the burden of injuries and the underlying risk factors, finding and implementing cost-effective preventive programmes on a large scale, monitoring and evaluating such programmes, and promoting cross-sectoral action and partnerships.
- The WHO Regional Office for Europe to work with the Member States in close collaboration and within the framework and approach followed at the global level.
- Promote development of national injury prevention plans by formulation of an overarching vision and strategy, and placing primary prevention at the core of activities with the health sector playing a coordinating role in a multisectoral response.
- Improve unintentional injury and violence surveillance by improving the documentation of different causes, risk factors, consequences, and cost of injury. Improve mortality statistics in the region, with emphasis on improving recording of the type of injury and place of occurrence and activity involved. Improve the recording of morbidity data by means of community surveys.
- Strengthen national capacity response to the burden of injuries.
- Strengthen national capacity for provision of services for victims of injuries and seek to improve prehospital and hospital care and rehabilitation of victims.
- Advocate injury prevention activities and promote implementation of effective preventive measures.
- Facilitate the exchange of knowledge and experience across the region by identifying and disseminating good practice and supporting the establishment and expansion of network of national focal points for violence and intentional injury prevention and other stakeholders.
- Develop and strengthen partners with stakeholders from different sectors, at local, national and international levels, to provide coordination and promote synergy in the response to injury and the use of available resources and competences.

- Address local priorities, particularly in transition countries such as those of the Baltic countries, CIS and south-eastern Europe, in response to the marked variation in injury patterns. This requires strong public health capacity for the implantation of cost-effective solutions locally, as well as strong political leadership across all levels of government.
- Recognise the gaps in knowledge and prioritise research and development in injury prevention and trauma care.
- Meet civil society's concerns about safety, and work with it to implement prevention programmes in different settings (e.g. schools, workplace, home) especially for the benefit of the vulnerable and the high-risk groups.

Additionally, WHO has identified *eight opportunities for policy-making and leadership* in the health sector aimed at improving health by reducing the burden of injuries in the European Region [9]. Those opportunities are as follows:

1. *Facilitate the exchange of knowledge and experience*
   Policy makers can support the exchange of knowledge and experience by identifying and disseminating good practice and supporting the establishment and expansion of injury prevention networks.

2. *Multisectoral cooperation*
   Political leaders along with well-organised efforts by the society are to provide safer physical and social environments that can result in quick, visible reduction in injury mortality and morbidity. In other words, they are to respond to the need for system-level commitment to put safety first in, for example, the design of safe roads, environments, housing, playgrounds and products, and to ensure that people's daily activities are as hazard-free as possible. The most effective interventions have all involved multisectoral cooperation.

3. *Effective prevention strategies – economic benefits*
   - Analysing the cost and benefits of selected safety measures.
   - Investing in primary prevention of injuries to save on injury treatment expenses.

4. *Optimised emergency and trauma care systems*
   Improvement in emergency and trauma care to reduce injury mortality. This includes primary health care, emergency care by ambulance staff, acute care in emergency departments and hospitals, victim rehabilitation, and reintegration.

5. *Controlling and monitoring of alcohol use and abuse*
   - Control measures include: alcohol-free environments, drink-driving laws, alcohol-related safety,
   - and better training of professionals in prevention, detection and control of alcohol use.
   - An integrated approach includes: combining education/training, legislation, monitoring and security, high-profile awards and social marketing to reduce alcohol-related violence and promote a safe environment.

6. *Addressing violence as part of an overall injury strategy*
   - Both unintentional injuries and violence require a multisectoral approach to deal with common risk factors.
   - Both demand a concern with ethical issues such as social justice and equity, when considering preventive policies for a vulnerable population.
   - Health care sector's leaders are to help generate more investment in health and health care.

7. *Advocacy and coordination by health sector*
   - Provide support for victims.
   - Identify and promote the implementation of evidence-based strategies.
   - Lead research and innovations.
   - Promote advocacy and work closely with other sectors including NGOs and community leaders.

8. *Effective interventions – both intentional and unintentional injuries*

   Below are examples of effective interventions from different fields of injury prevention:

   Prevention of Road Traffic Injuries [9, 10]
   - Setting and enforcing speed limits and providing adequate conditions for vulnerable road users.
   - Increasing the use of helmets supplemented by laws and educational campaigns. Requiring the use of motorcycle and bicycle helmets.
   - Using seat belts.
   - Measures to reduce driving under the influence of alcohol and other drugs. Enforcing legal limits on blood alcohol by laws and penalties.
   - Building safer road infrastructures for vulnerable road users. Improving the road environment. Planning and designing roads and urban environments for improved safety.
   - Safer vehicle design for protecting people in crashes: Providing visible, crashworthy, smart vehicles.
   - Improving conspicuousness and visibility: Wearing reflective strips or light clothing, and walking

facing oncoming traffic and on streets with good lighting. For cyclists, it includes wearing reflective clothing, using bicycle lights, and front, rear and wheel reflectors. For motorcycle riders this includes using running lights and wearing reflective clothing and white or light-coloured helmets.

Prevention of Poisonings [9]

- Adopting legislation and fiscal policy to reduce access to alcohol and unlicensed alcohol production.
- Restricting availability of dangerous substances.
- Have a network of poison control centres.

Prevention of Falls [9]

- Conducting risk assessment and modify homes and playgrounds.
- Ensuring that products and designs prevent falls.
- Implementing occupational safety standards.

Prevention of Drownings [9]

- Fencing of recreational and other waters.
- Teaching swimming skills.
- Providing lifeguards and better supervision of water users.
- Ensuring availability and use of personal flotation devices.

Prevention of Sport Injuries [2]

- Main strategy to be applied: promoting safe sports, advocating safety as well as participation in sports.
- Appropriate information on sports, use of personal protective equipment, adequate qualification of coaches, quality assurance and maintenance of equipment.

Prevention of Fires [9]

- Using smoke alarms.
- Providing safer stoves, utensils and fuels for cooking.
- Ensuring immediate simple first aid for burns.

Prevention of injuries caused by products and services [2]

- Safety equipment should be appropriate and adequately enforced by effective injury monitoring and reporting systems which identify the nature of the injury.

Prevention of Self-inflicted Injuries and Self-harm [2, 9]

- Restricting access to means, such as firearms, carbon monoxide in domestic surroundings, gas, pesticides and other harmful substances.
- Ensuring early identification and treatment of at-risk groups.
- Reducing poverty and social isolation.
- Improving social isolation.
- Actions to prevent suicides are to be encouraged at local, regional, and Community level.
- Treatment of mental health, particularly prevention of depression.

Prevention of Inter-personal violence [2, 9]

- Strengthening police and judicial systems.
- Passing laws to criminalise all forms of violence.
- Promoting safe storage and control of firearms.
- Reducing alcohol availability.
- Training health professionals in case detection and management of violence against women, children, and elderly people.
- Training children and adolescents in life skills.
- Reducing high concentrations of poverty and income inequalities.
- Changing cultural norms to make violence unacceptable.
- Reducing portrayals of violence in the mass media.
- Improved reporting techniques will be developed in order to obtain better estimates of the size of the problem.
- To supplement the limited data available from police records, efforts will be made to integrate information on 'hidden' forms of violence available from crime victimisation surveys. Involvement of the health sector in collaboration with the police, justice and welfare systems.
- Stakeholders need to be empowered by the provision of tools for planning, implementing and evaluating violence prevention projects.

Main points

The general elements in the WHO and EU policy papers for injury prevention are more or less the same. Framework for action can be summarised as follows:

- **To recognise injury as a major health problem and place it on the agenda of health policy.**
- **To develop national action plans for both unintentional injury and violence prevention.**
- **To promote intersectoral collaboration to ensure that injury prevention is properly integrated into different policies.**
- **To improve national surveillance to reach a better understanding of the burden and risks of injuries.**
- **To strengthen national capacity to respond to the burden of injuries.**
- **To promote evidence-based experience across the region.**
- **To recognise the gaps in knowledge and to prioritise research and development.**

4.2 National policies – Results of the WHO's national focal point survey

The purpose of this chapter is 1) to present and analyse national policies and strategies to prevent injuries, violence and risk-taking among young people in the European countries, and 2) to identify existing good models for prevention.

The network of European national focal points for violence and injury prevention are officially nominated by the Member States of the WHO European Region. Focal points should support, in collaboration with WHO, the implementation of the resolution adopted by the WHO Regional Committee for Europe in 2005 addressing priorities to reduce the burden from unintentional injuries and violence.

National policies and actions for injury and violence prevention among adolescents were collected from focal points by a survey. AdRisk developed the questionnaire (Annex) and carried out the survey in collaboration with WHO Euro. The questionnaires were sent by e-mail to 45 injury prevention and 45 violence prevention focal points on January 5, 2007 and the filled questionnaires were asked to be returned by e-mail not later than January 31, 2007 to the National Public Health Institute (KTL), Finland. A total of 20 focal points for injury prevention and 20 for violence prevention replied. The countries are presented on the table below (Table P1). The response rate was 44%. Only few focal points from West European countries answered. Possible reasons *not* to reply could be: lack of time, several other ongoing surveys, or difficulties to answer in English. However, considering the type of survey, the response rate is not low.

COUNTRIES	INJURY	National Policy?	VIOLENCE	National Policy?
Albania	x	no	x	no
Andorra				
Armenia	x	no	x	no
Austria	x	no		
Azerbaijan				
Belarus				
Belgium	x	no		
Bosnia and Hertzegovina				
Bulgaria	x	no	x	yes
Croatia				
Cyprus				
Czech Republic			x	yes
Denmark	x	yes	x	yes
Estonia				
Finland			x	yes
Georgia	x	no	x	yes
Greece	x	yes	x	yes
Hungary	x	yes	x	no
Ireland	x	no	x	no
Israel				
Italy				
Kazakhstan				
Kyrgyzstan				
Latvia				
Lithuania	x	no	x	no
Macedonia	x	no	x	no
Malta			x	yes
Monaco				
The Netherlands				
Norway	x	yes	x	yes
Poland				
Portugal				
Republic of Moldova				
Romania	x	no	x	no
Russian Federation	x	no	x	no
San Marino				
Serbia				
Slovakia	x	yes	x	no
Slovenia	x	yes	x	yes
Spain				
Sweden	x	no		
Switzerland	x	no	x	no
Republic of Macedonia				
Turkey				
The United Kingdom	x	no	x	no
Total	**20**	**6**	**20**	**9**

Table P1. List of countries who responded to the focal point survey and the question asking if the country has a national policy on injury prevention or violence prevention targeting young people.

4.2.1 Results for injury prevention

Injury prevention policy among young people (Question 1)

In many countries there is a general policy for injury prevention, though not especially for injury prevention among young people. Six focal points replied they have injury prevention policy for young people (Table P1). However, in practice, the policy was a set of laws or, for example, a policy for traffic safety or a general health policy. So the concept of policy was understood differently. Below are listed the national **policies** concerning injury prevention among young people:

- National Strategy for Disability Persons (Albania)
- National Action Plan for Road Safety (Albania, Bulgaria, Norway, Russia)
- National Youth policy (Austria, Macedonia)
- Healthy throughout Life – the targets and strategies for public health policy (Denmark)
- Road safety (Greece, Slovenia, Slovakia, The United Kingdom)
- Work safety (Greece)
- National Health Strategy, containing a commitment to develop a national injury prevention strategy (Ireland)
- Draft Youth Health Strategy (Macedonia)

EXAMPLE 1 **- FROM THE UNITED KINGDOM / Injury prevention policy for young people**

The UK does not have one specific policy on injury prevention targeting young people, instead they have a number of policy and guidance documents with focus on different aspects of injury prevention.

For example:
Saving Lives: Our Healthier Nation (Department of Health 1999)
This paper sets the national target for injury reduction: 'to reduce the death rates from accidents by at least one fifth and to reduce the rate of serious injury from accidents by at least one tenth by 2010.

Tomorrow's roads: safer for everyone (Department for Transport 2000)
Target: Reduce the number of people killed or seriously injured in Great Britain in road accidents by 40%, and the number of children killed or seriously injured by 50%, by 2010 compared with the average for 1994–98, tackling the significantly higher incidence in disadvantaged communities. (Department of Transport Public Service Agreement (PSA), target 5).

The Fire and Rescue National Framework 2005/06 (Office of the Deputy Prime Minister 2004)
Target: By 2010, reduce the number of accidental fire-related deaths in the home by 20% and the number of deliberate fires by 10%. (Office of the Deputy Prime Minister PSA, target 3).

National Suicide Prevention Strategy (Department of Health, 2002)

Target: Reduce the death rates from suicides by young men by at least one fifth by 2010.

National Alcohol Harm Reduction Strategy (NAHRS) (Prime Minister's Strategy Unit, 2004)
The NAHRS aims to address the range of harms caused by alcohol misuse in England, with alcohol-related crime and disorder being a key issue. In particular, binge drinkers are at high risk of accidental injury and violence and, consequently, the NAHRS has identified binge drinkers as a key group to focus alcohol-harm reduction strategies. Further, among young people, heavy drinkers are more likely to be involved in a road traffic accident (RTA) than moderate drinkers. One of the actions of the NAHRS is to monitor alcohol-related RTAs among this age group.

Every Child Matters (Green Paper, 2003)
The Green paper Every Child Matters sets out the Government's proposals for reforming the delivery of services for children, young people and families. It builds on existing measures to ensure that children at risk are protected from harm and neglect from negative outcomes and support all children to develop their full potential. For example, the government is piloting routine antenatal questioning for domestic violence.

Youth Matters: next steps (Green Paper, Department for Education and Skills, 2006)
The Green Paper Youth Matters aims to engage young people in shaping local services. The Paper focuses on four key strands: things to do and places to go; volunteering; information, advice and guidance; and targeted support. A key element of the Paper is the establishment of the Youth Opportunity Fund and Youth Capital Fund, which aim to allow young people to spend funds on activities that are relevant to them and their local area.

Choosing Health (White Paper, Department of Health, 2004)
The White Paper Choosing Health aims to: help people to make healthier choices for themselves; protect people's health from the actions of others; and recognise the particular needs and the importance of emotional and physical development of the young. Through the White Paper, the government aims to assess the effectiveness of the Heroes programme (run by SMARKRISK) that warns young people and adolescents about the risks of accidental injury and explain how they can modify their behaviour to avoid such risks. Further, the government will commission the Royal Society for the Prevention of Accidents to establish an accreditation scheme for safety centres across England to sustain best practice and new ways of delivering accident prevention messages.

Interventions to prevent accidental injury to young people aged 15–24. Evidence briefing (NICE, 2006)
This briefing highlights: effective ways to prevent accidental injury among 15–24-year-olds and particularly those in disadvantaged and vulnerable groups; cost-effectiveness data for interventions that aim to prevent accidental injury to young people; and gaps in the evidence and recommendations for future research.

EXAMPLE 2 - FROM AUSTRIA / Injury prevention policy for young people

There are two general programmes covering the topic of injury prevention, measures for young people (15 to 24 years) represent one part among others:

Austrian traffic safety programme 2002–2010
This programme for traffic safety outlines the most important targets in this field, proposes necessary improvements and possible measures for the time span of 2002 to 2010. (Aims specially directed at young people in this programme: enhanced awareness while driving a motorcycle, greater number of initial training hours for motorcycle drivers, mandatory road safety education for young people of 15 years at school).

Austrian accident prevention programme 2006–2010
This programme for accident prevention focuses on groups with a high accident risk, defines relevant intervention areas, targets and measures (The heightened accident risk of young people is specially mentioned. The programme targets - among other topics - people practicing sports, participants in traffic and people at work; special measures are formulated within this programme. One of the aims is to initiate a school subject called “health, safety and environment”).

Injury prevention targeting young people is included in the following programmes/projects:

Field: traffic
There is legislation
Legislation contains special measures to reduce injury risk for young people: probation period for novice drivers and in combination with this lower BAC limits and stricter regulations for some violences, enhanced driver training, multi phase education, enhanced scope of education for moped drivers.

In secondary schools, road safety education is voluntary but it is anchored as an educational principle. A nation-wide initiative (cornerstone) is the moped-training in secondary school/high level in the 9th and 10th classes. This training is offered as a voluntary subject (40 hours per year). The training ends with an exam and the moped license.

and a programme
Austrian traffic safety programme 2002 – 2010 (see above); in the “Regierungserklärung” of the new government in Austria at 16th of January 2007 “Fahrschulausbildung, Verkehrssicherheit” were especially mentioned.

Field: education
There is a programme on voluntary base
See road safety education as an educational principle for this age group and moped training in the 9th/10th grades (see above).

and there are special projects
A special, general prevention programme against violence at schools is in preparation.
There are mediator-projects at schools and extracurricular work targeted at coping with conflicts.

Field: health
There is a programme
Austrian accident prevention programme 2006–2010 (see above; was published by Ministry for health and women).

Field: work
There was a project
Recently there was a big campaign titled AUVA (Allgemeine Unfallversicherungsanstalt) dealing with safety at work, especially targeted at young people (15 to 24 years). The campaign lasted for two years and should help to reduce the number of accidents at work (in different areas) especially within the group of 15 to 24-year-olds.

and there is a programme.
Austrian accident prevention programme 2006–2010 (Ministry for health and women; one major part of this programme aims at preventing accidents at work.)

Field: extracurricular youth work
There are projects.
There are single projects which deal with testing of one's own limits, getting experiences and risk taking behaviour. Within "Erlebnispädagogik" aspects of risk taking behaviour are covered.
Examples of work: http://www.jugendzentren.at, see button "see you"
Working with boys: visit from an imprisoned person (work within concept "violence prevention"; jzottakring@jugendzentren.at), abseiling from a bridge, "abseiling and letting off", high wire garden.

→ Especially for risk taking behaviour:
Risflecting (http://www.risflecting.at/) is a pedagocial approach, within which concept the experience of intoxication and risk situation is taken seriously. There is an active examination of the self, the social environment, the specific substance and risk behaviour. Thereby a sensible contact of young people with intoxication and risk situations is aimed at.

Project risk'n'fun (http://web298.businessbox3.server-home.net/index.php; risk-fun@alpenverein.at)
This project offers courses for snowboarders. Experienced mountain guides instruct young people. Boarding is trained, but also aspects of nature, risk taking behaviour and group behaviour are experienced. The project is based on pedagogical concepts. The major topic is: from risk avoidance to risk competence.

National programmes or projects implemented (Question 2)

Below are different **projects and programmes** concerning injury prevention among young people:

- Specific programme in the context of risk-taking behaviour (Albania)
- Traffic/ Road safety (Albania, Armenia, Austria, Bulgaria, Greece, Ireland, Macedonia, Norway, Russia, Slovakia, Switzerland)
- Accident prevention programme (Austria)
- Safety at work (Austria)
- Prevention of risk-taking behaviour; specific substances and risk taking from risk avoidance to

risk competence (snowboard, aspects of nature, risk taking behaviour and group behaviour) (Austria)

- First aid, support for victims (Bulgaria)
- Prevention in party settings – on alcohol and drugs (Denmark)
- Prevention of home accidents (Greece)
- Prevention and actions in emergency situations like earthquake, floats, fires etc at schools (Greece)
- Drowning prevention campaign (Greece)
- Fire safety (Ireland)
- Water safety (Ireland)
- Violence prevention among youth (Macedonia)
- National Health Promotion programme (Slovakia)
- Environmental and Health plan (Slovakia)
- Safety tools for 16–18-year-olds (Switzerland)
- Sure Start: a Government programme aiming to provide children with the best start in life, THINK - a national publicity campaign about road safety, Fire Kills 'Put it Out. Right Out' - campaign led by the government and the Fire and Rescue Service aims to warn people of the dangers of smoking materials (The United Kingdom)

Key organisations and key persons (Question 3)

The focal points gave contact details for 38 key people or organisations from 17 different countries. The contact details are not presented in this report, but they have been used for collecting existing models of good practice for prevention of injuries and risk-taking behaviour among young people in Europe. Good practices are reported separately.

Interests or needs for injury prevention (Question 4)

Below are different **interests and needs** of focal points in the field of injury prevention and risk-taking behaviour:

- Exchange information on good practices and actual policies within the frame of a partner network (Albania)
- Co-operate on the development of a national action plan (Belgium, Greece, Lithuania, Macedonia, Russia)
- Experience in the field of other unintentional injury prevention (Bulgaria)
- Collaboration (Hungary)

- Projects that prevent risk taking behaviour of adolescents (Lithuania)
- Technical assistance to apply the CDC methodology and instrument in the youth risk behaviour survey focused on injuries (Macedonia)
- Technical assistance in developing system for continuous injury surveillance in general and specifically among youth (Macedonia)
- Schools, sport, road safety (Slovakia)
- Working towards the development of a National Action Plan for Violence Prevention (The United Kingdom)

4.2.2 Results for violence prevention

Violence prevention policy for young people (Question 1)

Based on the survey results, nine focal points reported that their country has a national violence prevention policy specifically aimed at young people. Most countries do not have this kind of policy. Below are the national **policies** for violence prevention in different countries:

- Action plan against domestic violence (Albania, Norway, Romania)
- National Programme on Human Trafficking and Suicide Prevention (Bulgaria)
- Support and the environment for the development of non-governmental organisations which deal with the problems of violence in the children and adolescents (Bulgaria)
- National programme on violence prevention in process (The Czech Republic, Macedonia)
- Crime prevention programme (Denmark)
- A general crime prevention program including violence prevention (Hungary)
- Draft Youth Health Strategy– injury prevention and violence prevention one of the main topics (Macedonia)
- National Policies: Child Abuse, Substance Abuse and Bullying (Malta)
- National Health Policy (Russia)
- National Programme for Children and Youth (age group 0–19) also strategy for violence prevention and suicide prevention is included (Slovenia)
- Every Child Matters, Respect Action Plan (anti-social behaviour among young people) National report on Domestic Violence, National Suicide Prevention Strategy, National Alcohol Harm Reduction Strategy, Youth Matters, The National Healthy School Standard, A Coordinated Prostitution Strategy, Tackling Violence against National Health Service staff, Saving Lives: Our Healthier Nation (The United Kingdom)

EXAMPLE FROM FINLAND / Violence prevention policy for young people

1) The Internal Security Programme, which was approved by the government in autumn 2004, has the aim that violence prevention would be taken into account in all local safety strategies which are based on comprehensive safety concepts.

2) National Programme for Reducing Violence in Finland includes all central forms of violence. It concentrates especially on criminal homicide, which in its wideness is the main central marker that separates Finnish violence from that of Western Europe and the Scandinavian countries, but also violence committed by and against children and young people, violence against women, violence in workplaces and racist violence.

3) Ministry of Social Affairs and Health have a National Action Programme to Prevent Intimate Partner and Domestic Violence during 2004–2007. One of the main objectives is to intensify early intervention in problems, with the particular aim to help those children and young people who witness and experience violence.

National programmes or projects implemented (Question 2)

Below are different **projects and programmes** concerning violence prevention:

- Biological and Behaviour Survey Study, Volunteer Confidential Counsel Test, Study of Intravenous Drug Users and Sex Workers, Valuation of Quality of Life, Care and Support of HIV persons (Albania)
- National Programme on Human Trafficking, National Programme for the Prevention of Violence among Children and Adolescents and the Integration of Children-Victims of Violence, National Program on Suicide, National Action Plan against Commercial Sexual Exploit of Children, National integration Plan to implementation to Convention United Nations of children's rights, Preventive program for sexually abused children Project "Reducing the Risk of Trafficking among Children and Young Women", "Mainstreaming the Combat against Child Labour into the Agenda of Youth Clubs and Service Providers, Prevention of Violence in Social Institutions for Children (Bulgaria)
- Local authorities, schools and non-governmental organisations have a programme of violence prevention and helpline for children and young people (The Czech Republic)
- Mediation programme, Substance prevention programme, Safe flirtation programme, Safe nightlife programme, Conflict resolution programme (Denmark)
- National Action Programme to Prevent Intimate Partner and Domestic Violence (Finland)
- Prevention of violence against women and children (Georgia)

- Secondary prevention programmes: trafficking victims support, young refugees' support, support of the people blocked from the job offer (Greece)
- Network for prevention and combat of child's somatic punishment (Greece)
- Intervention of Intimate Partner Violence (Greece)
- Improving the Response to Intimate Partner Violence in Military Settings (Greece)
- Programme with the title "Teenager say no to violence" (Greece)
- Program for prevention of crime among children and adolescents (Lithuania)
- Youth Risk Behaviour Survey (Macedonia)
- Child Friendly Schools, Life Skills, Childhood without violence, Youth friendly services, suicide prevention programmes (Macedonia)
- Safe Schools' Programme (Malta)
- School campaigns on the prevention and combating violence targeted to pupils or teachers and training sessions for the pupils having the subject "Zero tolerance on violence" (Romania)
- Safe behaviour" and "Safety housing" (Slovakia)
- Healthy Schools (Slovenia)
- Several campaigns on the issue of violence (Switzerland)
- Sure Start, Home Office Tackling Violent Crime Programme Initiate, Connexions (the government's support service for adolescents that provides personal advisors to young people), FRANK campaign (drug awareness)

Key organizations and key persons (Question 3)

The focal points gave 75 contact details of the key people and organisations from 20 different countries. The contact details are not presented in this report, but they have been used for identifying existing models of good practice for prevention of violence and risk-taking behaviour among young people. Good practices are reported separately.

Interests or needs for injury prevention (Question 4)

- Develop national action plan (Albania, Armenia, Bulgaria, The Czech Republic, Finland, Georgia, Greece, Hungary, Lithuania, Macedonia, Romania, Russia, Slovakia)
- Access to information concerning the collection and analysis of data on violence and violence prevention among young people
- Corporal punishment, bullying in school, commercial sexual exploitation, dating violence (The Czech Republic)
- Establishing data base on violence among young people (Macedonia)

- Increasing need to have efficient programmes targeting issues dealing with cultural diversity, tolerance, good citizenship + democracy (Malta)
- The Foundation Charlotte Olivier is developing an innovative program based on enhancing resilience factors among groups of young people in state of preventing risk factors. This may be a good idea to bring together people interested in this approach (Switzerland)
- Currently working towards the development of a National Action Plan for Violence Prevention and will continue to provide support to government agencies where appropriate (The United Kingdom)

Main points

Survey addressing WHO Focal Points:

- **Survey response rate was 44%.**
- **Most countries have several different policies including issues about injury and/or violence prevention among young people, but it is not common to have a special national policy targeting young people.**
- **Most often the injury and/or violence prevention is part of a broader health policy targeting all age groups.**
- **There is quite large variation in the situation between countries: in some countries there are hardly any plans or actions, in others there are plenty of organizations involved in injury or violence prevention.**
- **A large number of injury and violence prevention programmes and projects are carried out and, in most countries, several different organizations (governmental and NGOs) are working in the field.**
- **Road safety is the most common specific subject in injury prevention.**
- **Most participants were very interested in collaboration and especially to develop a national action plan for injury prevention and for violence prevention for young people.**
- **There is willingness for further development of national action plans for injury prevention as recommended also by WHO and the EU.**

ANNEX

ADRISK –QUESTIONNAIRE

ABOUT INJURY PREVENTION (OR VIOLENCE PREVENTION) AND RISK-TAKING BEHAVIOUR AMONG YOUNG PEOPLE

to European National Focal Points on Injury Prevention

1. Does your country have a policy on injury prevention (or violence prevention) targeting especially young people?

   ___ No
   ___ I do not know, please contact _____
   ___ Yes, please describe

2. What kind of national programmes or projects have been implemented in your country on injury prevention (or violence prevention) among young people? Do you know about specific programmes in the context of risk-taking behaviour? Could you please describe them or provide contact person / contact organisation / webpage for more information?

3. Could you please name key organisations and/or key persons (others than focal points) in your country who are working at national level in injury prevention (or violence prevention) among young people (e.g. road accidents, work accidents, home- and leisure time accidents like sport injuries, projects targeting risk-taking behaviour in general)?

Name	
Email address	
Postal address	
Telephone number	
Fax number	

4. What are your specific interests or needs in the field of injury prevention (or violence prevention) / risk taking behaviour among young people? Do have specific information needs? Would you be interested to co-operate on the development of a National Action Plan in this field?

DEFINITIONS

YOUNG PEOPLE = age group between 15–24 years

POLICY = formal (and written) statement or procedure within institutions (notably government) which defines the priorities and parameters for action in response to health needs, available resources and other political pressures.

PROGRAMME = usually refers to a group of activities which are designed to be implemented in order to reach policy objectives.

PROJECT = usually a discreet piece of work addressing a single population group or health determinant, usually with a pre-set time limit.

RISK-TAKING BEHAVIOUR = a voluntary and conscious exposure to risk and danger (e.g. experimentation with substance abuse, drinking and driving, reckless driving, unsafe sex, violent acts).

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5. Recommandations Glossary

The recommendations here are based on the most important findings from literature concerning injury-related interventions, research and policies among young people in Europe. These recommendations also support earlier recommendations made by the EU and WHO.

RECOMMENDATIONS CONCERNING INTERVENTIONS:

1. Prevention of injuries among young people ought to receive more attention, because injuries are the major cause of mortality and morbidity for young people.
2. There is strong evidence that enforcement and legislation approaches are successful in the prevention of injuries and therefore they should be promoted especially nationally but also internationally.
3. In order to be effective, school programmes should include the following elements: part of the whole-school curriculum, multiple interactive sessions, focus on skills learning and single issues, delivery by trained teachers, part of larger community programmes.
4. In order to test successful interventions from other countries, interventions and studies should be tailored for different cultural environments.
5. Interventions that target a variety of aspects, as e.g. community-based programmes (including education, enforcement, and engineering), are most likely to be effective and should therefore be promoted.

RECOMMENDATIONS CONCERNING RESEARCH:

1. There is a need to have more studies and funds on injury prevention among young people in general, but especially relating to home and leisure time injuries like sports and out of school activities.
2. Methods are needed to bridge the gap between research and practice; too often research evidence has no influence on preventive practices.
3. More research is needed to find out how risk-taking behaviour is linked to injuries and injury prevention.
4. Cost-effectiveness of injury prevention programmes among young people should be studied more, as the role of such arguments is important especially for policy-makers.
5. More European studies are needed, because most of the available studies on injury prevention are from North America and translating findings to Europe may not be straightforward.

RECOMMENDATIONS CONCERNING POLICY:

1. Strategy development and action plans on injury prevention among young people at international, national and local levels are needed.
2. Intersectoral collaboration should be promoted by integrating injury prevention into different policies.
3. Better international and national, even local surveillance systems, are needed to give a basis for successful action.
4. Policy decisions should be based on the most up-to-date research evidence and dissemination of evidence-based experience should be strengthened.
5. Capacity building in the field of injury prevention for policy makers and professionals should be strengthened.

Glossary

Action plan

Defines the expected timelines, specific activities and resources needed, and also provides guidance on how to implement, monitor and evaluate activities (WHO, 2006).

Community-based intervention

Targets a group of individuals or a geographic community but is not aimed at a single individual. Communities could be, for example, cities, municipalities or schools. Definition excludes interventions delivered in clinical settings and interventions targeting areas as large as states or countries.

Cyclist

One who rides a bicycle, bike, or cycle. A bicycle, bike, or cycle is a pedal-driven, human-powered vehicle with two wheels attached to a frame, one behind the other.

Drowning

The process of experiencing respiratory impairment from submersion/immersion in liquid. Drowning outcomes are classified as death, morbidity and no morbidity (WHO 2003).

Education

Education encompasses teaching and learning specific skills, and also something less tangible but more profound: the imparting of knowledge, positive judgement and well-developed wisdom.

Effective intervention

Interventions evaluated with a strong research design, showing evidence of a preventive effect (WHO 2007).

European Union (EU27)

Austria, Belgium, Bulgaria, The Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and The United Kingdom.

Good practice

1) A prevention strategy that has been evaluated and found to be effective (either through a systematic review or at least one rigorous evaluation) OR
2) A prevention strategy whose rigorous evaluation is difficult but expert opinion supports the practice and data suggest it is an effective strategy
   (e.g. use of personal flotation devices (PFD) to prevent drowning) OR
3) A prevention strategy whose rigorous evaluation is difficult but expert opinion supports the practice and there is a clear link between the strategy and reduced risk albeit a less clear link between the strategy and reduced injuries (e.g. secure storage of poisonings) AND
4) The strategy in question has been implemented in a real world setting so that the practicality of the intervention has also been examined (Child safety; Good Practice Guide 2006).

Health system

Includes all the activities with a primary purpose of protecting, promoting, restoring or maintaining health (WHO).

Health promotion

Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social wellbeing, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment (Ottawa Charter WHO 1986).

Injury

Physical damage that results when a human body is suddenly subjected to energy in amounts that exceed the threshold of physiological tolerance, or the result of the lack of one or more vital elements, such as oxygen. This energy could be mechanical, thermal, chemical or radiant (WHO, 2005). Injuries can be unintentional or intentional.

Intentional injury

Deliberately inflicted and include self-inflicted injuries, interpersonal and collective violence. Self-inflected injuries are caused by the person herself or himself. Interpersonal violence includes injuries caused intentionally by another person. Injuries caused by collective violence are, for example, due to war, civil insurrection and acts of terrorism (WHO, 2006).

Intoxication

Accidental poisonings, e.g. heavy alcohol /drug use. *Alcohol poisoning* is caused by drinking a large amount of alcohol in a relatively short time period.

Home- and leisure time injury

Unintentional injuries occurring at times other than working hours and in settings other than traffic areas.

Mortality rate

An estimate of the proportion of a population that dies during a specified period. The numerator is the number of persons dying during the period; the denominator is the total number of people in the population, usually estimated as the mid-year population (WHO).

Life skill development

Life skill development means development in coping with stress, self-esteem enhancement, problem-solving, development of interpersonal relationships and conflict resolutions.

Pedestrian

A person travelling on foot, whether walking or running. In modern times, the term mostly refers to someone walking on a road or footpath, but this was not the case historically.

Prevention

Prevention concentrates upon identifying ways to keep people from committing acts of violence and of stopping the events that led to unintentional injuries from occurring. It is achieved by removing or reducing the underlying causes and risk factors (WHO, 2007).

1) Primary prevention. Means avoidance of development of dysfunctions, wrong behaviour or development of diseases. It aims at lifestyle measures for those who are at risk and to strengthen protecting factors (WHO 1994).

2) Secondary prevention. Aims at avoiding further development. It focuses on the individual and his specific risk-taking behaviour (WHO 1994).

3) Tertiary prevention. Aims at avoiding consequences of undesirable behaviour (WHO, 1994).

Policy

Policy is generally interpreted as being a written document that provides the basis for action to be taken jointly by the government and its non-governmental partners (WHO 2006).

Programme

Refers to a group of activities which are designed to be implemented in order to reach policy objectives.

Project

A discreet piece of work addressing a single population group or health determinant, usually with a pre-set time limit.

Resilience

Universal capacity which allows a person, group or community to minimise or overcome the damaging effects of adversity.

Risk

Is the possibility that behaviour or an action has the consequence of a bodily or material damage or is connected to loss or other disadvantages (differentiation to danger which means immediate harassment).

Risk factor

Describes the influence of environment, behaviour and disposition on risk. This term derives from social medicine, health care and epidemiology.

Risk indicator

Is a quantity for risk, for example, fatalities within a population within a defined time period, or loss of life expectancy due to risk-taking behaviour are used as risk indicators.

Risk-taking

Risk-taking is referred to on two levels, on a general level, i.e. everyday risk-taking such as crossing the street on red light, and then on a more specific level when talking about certain risk-taking *behaviours*, i.e. drinking and driving, cannabis use, smoking and alcohol use, which are especially typical of young people and associated with injuries and health.

Risk-taking behaviour

Is a voluntary and conscious exposure to risk and danger (e.g. experimentation with substance abuse, drinking and driving, reckless driving, unsafe sex, violent acts).

Road traffic injury

Road traffic injury is defined as 'as a fatal or non-fatal injury incurred as a result of a road traffic crash'. *A road traffic crash* is defined as a collision or incident that may or may not lead to injury, occurring on a public road and involving at least one moving vehicle (WHO, 2004).

Self-harm

Self-inflicted violence (i.e. suicide, attempted suicide, self-abuse (WHO, 2006).

Sports injury

Injury sustained during sports activities, e.g. in recreational and competitive sports and various commuting and lifestyle activities.

Strategy

Defines the main directions and actions required to achieve policy objective (WHO, 2006).

Suicide

Suicide is the act of deliberately killing oneself. Risk factors for suicide include mental disorder (such as depression, personality disorder, alcohol dependence, or schizophrenia), and some physical illnesses, such as neurological disorders, cancer, and HIV infection (WHO).

Suicidal behaviour

Ranging in degree from merely thinking about ending one's life, thorough developing a plan to commit suicide and obtaining the means to do so, attempting to kill oneself, to finally carrying out the act. Suicidal behaviour includes self-directed harm that does not necessarily lead to death (WHO).

Surveillance

Ongoing systematic collection, analysis, and interpretation of health data necessary for designing, implementing, and evaluating public health prevention programmes (WHO 2007).

Traffic injury

Refers to any traffic related accidents/ injuries involving e.g. pedestrians, cycles, cars or motorised two-wheelers etc.

Unintentional injury

Defined as a physical harm caused unintentionally by external factors. Unintentional injuries are subdivided by their causal mechanism such as poisoning, drowning, falls, road traffic injuries (WHO 2006).

Vulnerable Road User

Those unprotected by an outside shield, namely pedestrians and two-wheelers. Especially elderly and children have a greater risk of mortality than other road users (WHO 2004).

Violence

Defined as the intentional use of physical force or power, threatened or actual, against oneself, another person, or group or community that results in injury, death, psychological harm, maldevelopment or deprivation (WHO 2005).

Self-directed violence

Refers to violence directed to oneself. Self-directed violence is subdivided into *self-harm* that does not lead to immediate death and *suicide* (WHO 2004).

Interpersonal violence

Refers to violence between individuals, and is subdivided into “family and: intimate partner violence” (child maltreatment, intimate partner violence, and elder abuse); and “community violence” (youth violence, assault by strangers violence related to property crimes, and violence in workplaces and other institutions) (WHO 2004).

Collective violence

Refers to violence committed by larger groups of individuals and can be subdivided into social, political and economic violence. E.g. war or civil insurrection, acts of terrorisms, gangs (WHO 2006).

Violence by intimate partners

Any behaviour within an intimate relationship that causes physical, psychological, or sexual harm to those in the relationship. Violence by intimate partners includes psychological, physical and sexual violence that is exercised by the actual partner or by former partner (WHO 2006).

Sexual violence

Any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work (WHO 2006).

WHO European Region

Albania, Andorra, Armenia, Austria, Azerbaijan, Belgium, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, The Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, The Netherlands, Norway, Poland, Portugal, The Republic of Moldova, Romania, The Russian Federation, San Marino, Slovenia, Serbia, Slovakia, Spain, Sweden, Switzerland, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, The United Kingdom, Uzbekistan.

Work injury

Injuries sustained at work / during working hours.

Young people

Persons between the ages of 15–24 years.