

### Rationale

Injuries<sup>a</sup> are a neglected but preventable epidemic and in the 53 countries in the WHO European Region account for nearly 800 000 lives lost annually (equivalent to 9% or 1 in 11 of all deaths) and 14% (or 1 in 7) of the total burden of disease.<sup>1</sup> They are the third leading cause of death after cardiovascular diseases and cancer, and are the leading cause of death in people under the age of 45 years. Almost one in four injury deaths occur in males. The three leading causes of injury death are suicide, road traffic injury and poisoning. Whereas in the past injuries have been regarded as unavoidable daily occurrences, current thinking has shown that they can be studied and prevented. In view of the high burden from injuries, there have been calls for public health action to reduce the daily loss. Among these is the WHO Regional Committee resolution RC55/R9 on the prevention of injuries and the European Commission's Communication on Actions for a safer Europe.<sup>2,3</sup>

There is tremendous diversity in the Region's 53 countries in terms of geography and socioeconomic, environmental, political and cultural conditions.<sup>4</sup> Life expectancy also shows considerable variation and this is most dramatic in males, with a twenty-one-year difference between the countries with the shortest life expectancy (Russian Federation at 59 years) and the longest (Switzerland at 80 years). Female life expectancy shows less pronounced differences and ranges from 84 years in Spain to 70 years in Turkmenistan. Most of the differences in life expectancy are driven by premature mortality from noncommunicable disease and injuries.<sup>5</sup> Clearly these causes of premature mortality are a threat to population health and economic development of many countries in the Region. Much of the premature mortality is due to high levels of injury mortality and as injuries are preventable, it is paramount to reduce the burden from injuries by implementing preventive programmes.<sup>6,7</sup> It has been estimated that, if all countries in the Region had the same levels of mortality as the country with the

lowest mortality, about 500 000 lives could be saved.<sup>1</sup>

In all countries, there are inequalities in injury mortality and morbidity with people from lower socioeconomic groups being prone to a greater burden than higher socioeconomic groups.<sup>6,8</sup> Studying inequalities in the burden of injuries is important because it highlights the different experience of population groups between and within countries and improves understanding of the role of socioeconomic determinants and the differential exposure to risk.<sup>8,9</sup> Responses to reduce the burden can then be developed to target specific disadvantaged subgroups or whole populations, and would involve improving the range of, and access to, preventive programmes and curative services.

### Aim

This fact sheet highlights the inequalities in injuries and injury risks in the Region to maximize the potential for a policy response. It is aimed at policy-makers working in the health sector, nongovernmental organizations, and other injury prevention practitioners.

### The scale of inequalities between countries

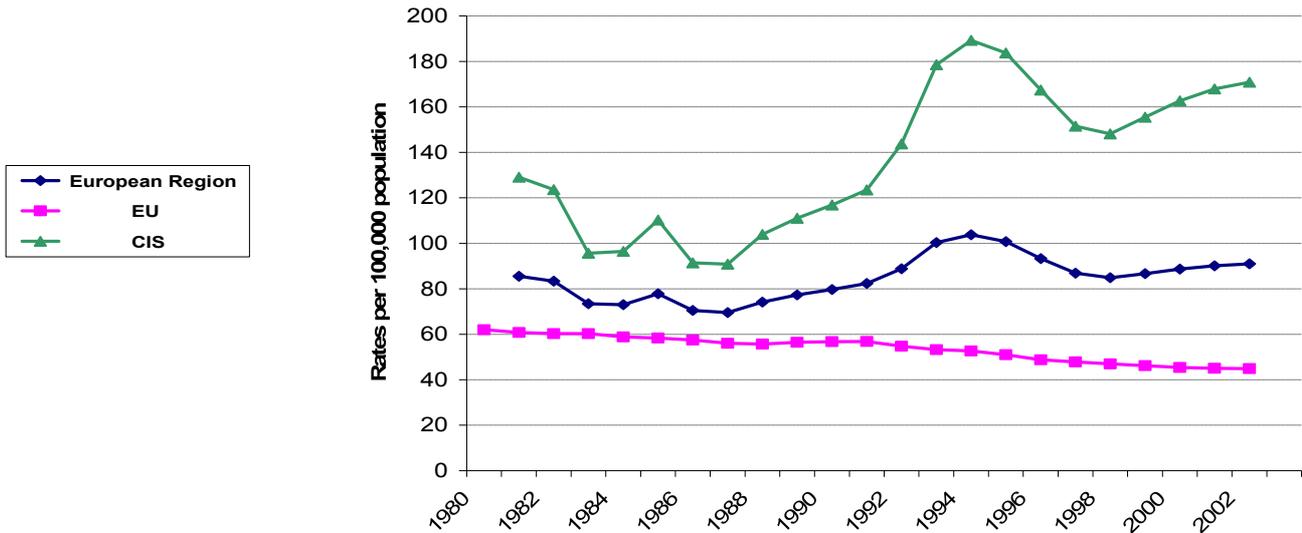
Socioeconomic determinants of injuries are thought to be mediated through material, cultural and social factors.<sup>9</sup> Fig. 1 shows the trends in injury mortality rates with time for the European Region, European Union (EU) and Commonwealth of Independent States (CIS). The east of the Region has witnessed tremendous socioeconomic and political transition in the last two decades, and the impact on the physical and cultural environment has been great.<sup>10</sup> This has resulted in changes in exposure, health behaviour and social support networks affecting the health of populations, and an unprecedented rise in injury mortality and morbidity.<sup>10</sup> The CIS showed a sharp rise in injury mortality in the early 1990s, which coincided with political and socioeconomic transition, and was associated with the liberalization of alcohol controls instituted in the early 1980s.<sup>11</sup> This

<sup>a</sup> An injury is the physical damage that results when a human body is suddenly subjected to energy in amounts that exceed the threshold of physiological tolerance, or from a lack of one or more vital elements (for example, oxygen). The energy could be mechanical, thermal, chemical or radiant.<sup>3</sup> It is usual to define injuries by intention. The main causes of unintentional injuries are motor vehicle accidents, poisoning, drowning, falls and burns. Violence is the intentional threat or use of physical force against oneself, another person or a group or community that results in injury, death, psychological harm, maldevelopment or deprivation.



peaked in the mid-1990s followed by a fall thought to be associated with an economic downturn, followed by a rise again at the end of the last decade with further deregulation, economic recovery, and motorization and increased access to alcohol. The trends show an alarming divergence between the CIS and EU countries.

Fig. 1: Trends in standardized mortality rates for all injuries in the European Region, CIS and EU, 1980–2002 (source: Mortality indicators by 67 causes of death, age and sex (HFA-MDB) June 2006 release)<sup>12</sup>



The map of the European Region (Fig. 2) shows that by far the highest rates for all injuries (intentional and unintentional) in all ages, are in the eastern part of the Region.

Fig. 2: Age-standardized death rates from all injuries and for both sexes per 100 000 population, WHO European Region (source: Mortality indicators by 67 causes of death, age and sex (HFA-MDB) June 2006 release)<sup>12</sup>

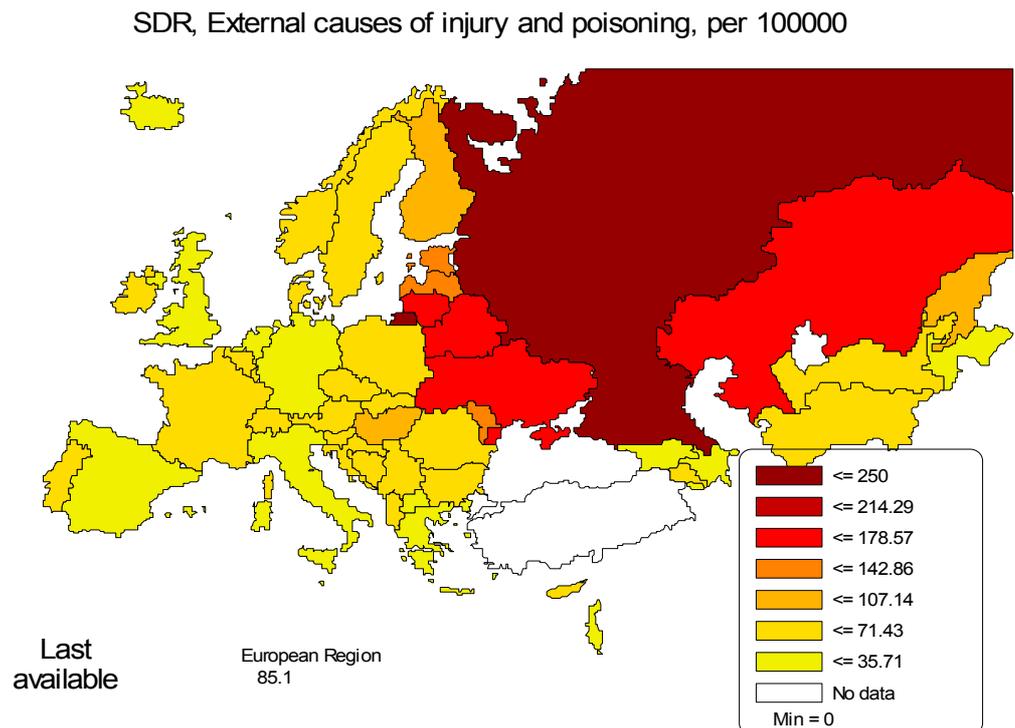




Fig. 3 shows the differences in the 27 EU countries, which further highlights the intercountry differences.

Fig. 3: Age-standardized death rates from all injuries and for both sexes per 100 000 population in the EU (source: Mortality indicators by 67 causes of death, age and sex (HFA-MDB) June 2006 release)<sup>12</sup>

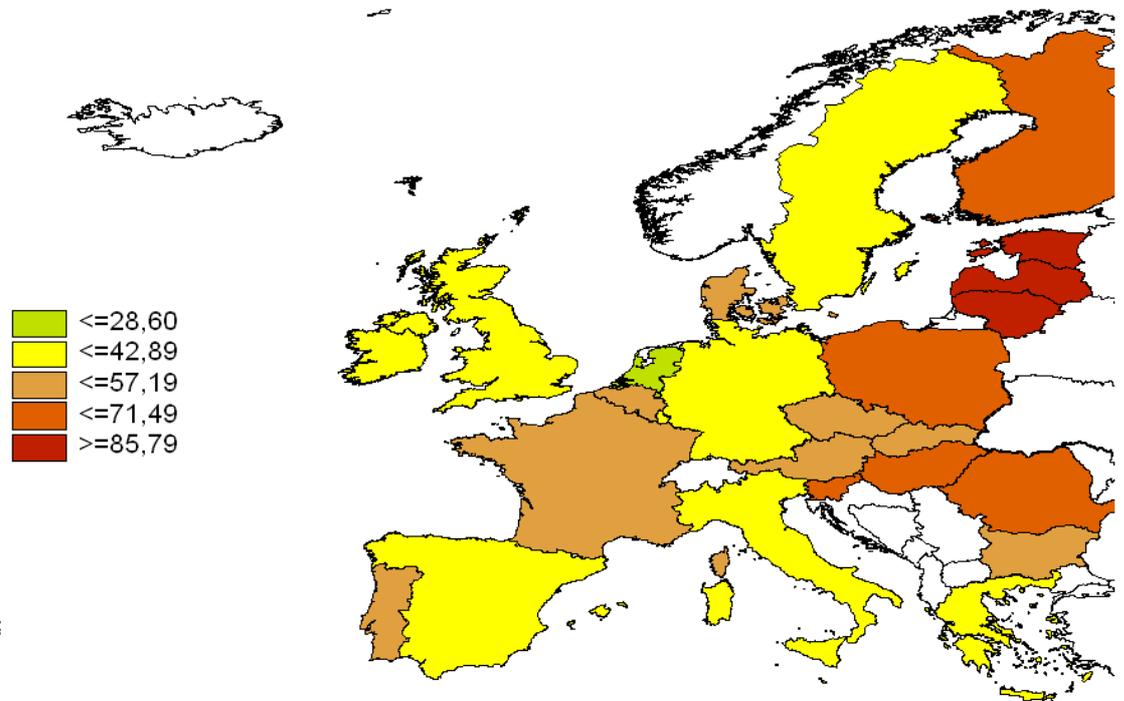
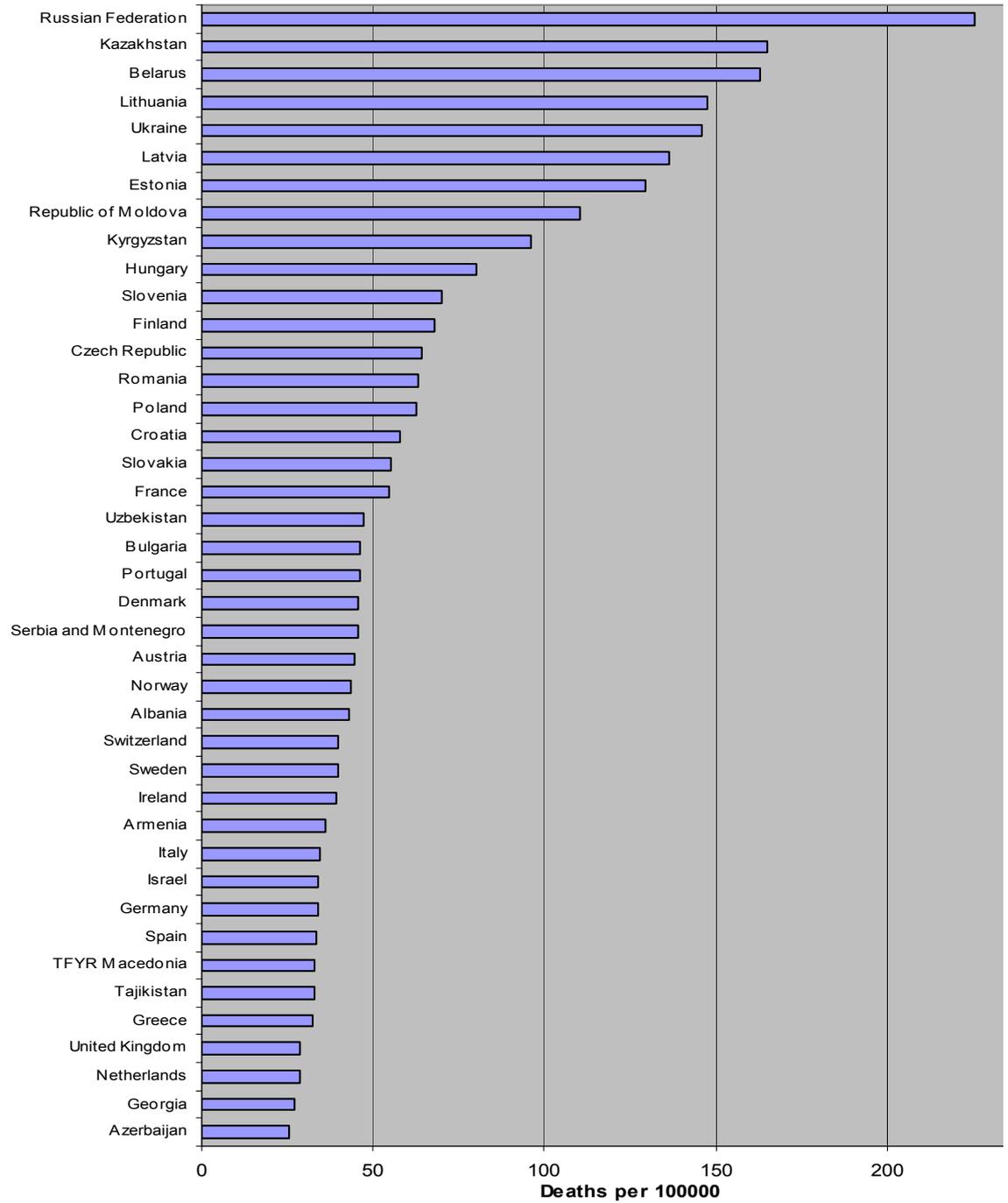


Fig. 4 ranks countries in descending order of all injury mortality rates per 100 000 population for 2003; countries with missing data and those with a population of less than 1 million were left out. There is an eightfold difference between the country with the highest injury mortality (Russian Federation, 219 deaths per 100 000 population) when compared to one of those with the lowest (Netherlands, 27 per 100 000 population). This will vary by age, sex and cause of injury. Such differences have also been shown by others, separately for unintentional and intentional injuries.<sup>13,14</sup>



**Fig. 4. Age-standardized death rates for all injuries per 100000 population in the European Region, 2003**  
 (source: Mortality indicators by 67 causes of death, age and sex (HFA-MDB) June 2006 release)<sup>12</sup>





## Inequalities by country income

One of the ways of classifying countries in the Region is by country income, using the World Bank definition,<sup>15</sup> which defines high-income countries (HIC) as those with a per capita gross domestic product of greater than US\$ 9206 and low-and-middle-income countries (LMIC) as those with a gross domestic product of less than US\$ 9206.<sup>b</sup> Table 1 shows a comparison of LMIC and HIC by cause of injury using data from the Global Burden of Disease Study.<sup>1,6,16</sup> It shows that populations living in LMIC are at higher risk of injury death than those in HIC. The risks are 3.6 times greater for all injuries, 16.9 times greater for poisoning, 13.8 times greater for interpersonal violence and 9.2 times greater for drowning. When considered separately by sex, death rates are higher in LMIC than in HIC for all causes, with the exception of falls in females, where rates are higher in HIC than LMIC. For all causes, death rates are higher in males than in females: by a factor of 2.5 in HIC and 3.8 in LMIC for all injuries.

**Table 1: Standardized mortality rates with rate ratios from all injuries for males and females in LMIC and HIC in the WHO European Region**

Injury by cause	Deaths per 100 000				Rate ratios		
	Males		Females		LMIC:HIC		
	HIC	LMIC	HIC	LMIC	Males	Females	Both
All injuries	44.92	183.49	18.27	48.44	4.08	2.65	3.60
Road traffic injuries	15.81	24.47	4.83	7.78	1.55	1.61	1.54
Suicide	13.24	37.20	4.20	7.30	2.87	1.74	2.50
Falls	4.84	8.96	4.45	3.36	1.85	0.75	1.29
Poisoning	1.68	30.18	0.56	8.45	17.93	15.10	16.87
Interpersonal violence	1.24	20.11	0.64	6.21	16.18	9.73	13.80
Drowning	1.18	11.63	0.32	2.44	9.83	7.57	9.20
Fires	0.65	5.78	0.35	2.14	8.88	6.20	7.80

## Inequalities by age and sex

Inequalities by sex are broadly described above: males have higher overall mortality rates from injuries than females. Females are more often subjected to some forms of violence that may lead to injuries, such as intimate partner violence and sexual violence.<sup>1,17</sup>

Older people (those aged over 65) have higher death rates from injuries than other age groups. This is particularly important given the ageing population in the Region. For example, in the EU, this age group represents 16% of the total population, but suffers a disproportionate 40% of fatal injuries and therefore runs twice the risk of encountering a fatal injury.<sup>3</sup> Older people are more likely to be injured because of impairments of gait, vision and balance; injuries are more likely to be severe and recovery protracted because of their frailty. The three leading causes of injury death for this age group in the Region are falls, road traffic and self-inflicted injuries.<sup>1</sup> Few reports examine the social class dimension of injuries in older people.

<sup>b</sup> LMIC in the WHO European Region are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Poland, the Republic of Moldova, Romania, the Russian Federation, Serbia and Montenegro, Slovakia, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan and Ukraine.<sup>7</sup>

High-income countries in the WHO European Region are Andorra, Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Malta, Monaco, the Netherlands, Norway, Portugal, San Marino, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.<sup>7</sup>



Injuries are the leading cause of death in children aged 0–14 years, accounting for 36% of total deaths. The three leading causes of injury death are road traffic, drowning and poisoning. For children under one, the leading cause is suffocation and for the group aged 1–4 years drowning is the leading cause. Children are particularly vulnerable to injuries, as they live in a world designed for adults. Reports suggest that there is a steep social class gradient for children, and deprived children are 3–4 times more likely to die from injuries.<sup>18,19</sup>

## The scale of inequalities within countries

Most of the evidence of socioeconomic differentials in injury risk comes from a few HIC with far fewer studies from LMIC. Studies show that there is an increased mortality risk in the deprived for most injury causes, including drowning, falls, poisoning, road traffic, fires and homicide.<sup>19</sup> Results from the United Kingdom show that the increased risk varies by type of injury; the risks for children from the lowest socioeconomic class have 5 times the risks of children from the highest class as pedestrians, 16 times for fires, 7 times for falls and 6 times for homicide.<sup>19</sup> The same country trends show that the improvement in mortality seen in high socioeconomic classes has not appeared in the lowest class.<sup>20</sup> Children from lower social classes were 3.5 times more likely to die from injuries than those from higher classes, and this differential increased to 5 times a decade later. The widening gap between the rich and poor is an alarming trend, and is common to other settings, too. Data from Sweden and the Netherlands show similar patterns.<sup>8,21</sup> Recent studies show a widening gap in the United Kingdom, children in families with no employed parent have 28 times the risk of injury death from cycling and 38 times the risk of death in fires of those in the highest social class.<sup>22</sup> Lower educational levels in the Russian Federation are associated with double the mortality rate for occupational injury for higher educational levels.<sup>23</sup>

## Potential explanations for inequalities in injuries

Most diseases and causes of death are more common lower down the social hierarchy.<sup>9</sup> This is particularly true of the inequalities in injuries, and associations have been found with single parenthood, low maternal education, low maternal age at birth, poor housing, large family size and parental alcohol and drug use.<sup>18,19</sup> The social gradient in injuries reflects material, social and cultural disadvantage.<sup>6,9</sup> Disadvantage may take different forms: few family assets, poorer education, insecure employment, exposure to risks at work, poor housing and unsafe living environments, difficult circumstances for bringing up children, fewer social resources, inability to pay for safety equipment, and limited access to information and services, lack of knowledge and risk-taking behaviours.<sup>6,9,24</sup> These effects may accumulate over time, resulting in a higher incidence of serious injuries.

Understanding the determinants is part of the public health response to prevention.<sup>9</sup> Socioeconomic class and poverty influence the occurrence and outcomes of injuries through physical, social, psychological, educational and occupational variables, as well as other societal factors, such as the existence of social capital and social networks<sup>21,25,26</sup> Once injured, poorer people may have less access to high-quality emergency medical and rehabilitative services, and the costs of health care and lost earning capacity have a severe negative impact on their financial situation.<sup>26</sup> People in rural as opposed to urban areas may be at greater risk from injuries such as road traffic, drowning, fires, machinery and small arms. This is related to poverty, increased exposure to risks and poorer access to emergency services.<sup>27</sup>

Although absolute poverty continues to exist in the richest countries in the European Region, it is far more prevalent in LMIC. LMIC in the Region are undergoing political change and rapid transition to market economies. The political and societal uncertainty has caused socioeconomic stress. High inflation, unemployment, inequality, social disintegration, the concentration of wealth in fewer hands and high levels of poverty have led to not only changes in exposure to risk but also a weakening of the safety and support networks that mitigate the effects of injuries.<sup>28</sup> Social exclusion and the lack of social networks, social capital, and community cohesion influence people's capacity to withstand social conflict without having to resort to



violence.<sup>29</sup> Income inequality and social disjunction during the period of transition have been associated with higher homicide and suicide rates.<sup>17</sup>

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