CHAPTER 2
Youth violence

Background

Violence by young people is one of the most visible forms of violence in society. Around the world, newspapers and the broadcast media report daily on violence by gangs, in schools or by young people on the streets. The main victims and perpetrators of such violence, almost everywhere, are themselves adolescents and young adults (*1*). Homicide and non-fatal assaults involving young people contribute greatly to the global burden of premature death, injury and disability (*1, 2*).

Youth violence deeply harms not only its victims, but also their families, friends and communities. Its effects are seen not only in death, illness and disability, but also in terms of the quality of life. Violence involving young people adds greatly to the costs of health and welfare services, reduces productivity, decreases the value of property, disrupts a range of essential services and generally undermines the fabric of society.

The problem of youth violence cannot be viewed in isolation from other problem behaviours. Violent young people tend to commit a range of crimes. They also often display other problems, such as truancy and dropping out of school, substance abuse, compulsive lying, reckless driving and high rates of sexually transmitted diseases. However, not all violent youths have significant problems other than their violence and not all young people with problems are necessarily violent (*3*).

There are close links between youth violence and other forms of violence. Witnessing violence in the home or being physically or sexually abused, for instance, may condition children or adolescents to regard violence as an acceptable means of resolving problems (*4, 5*). Prolonged exposure to armed conflicts may also contribute to a general culture of terror that increases the incidence of youth violence (*6–8*). Understanding the factors that increase the risk of young people being the victims or perpetrators of violence is essential for developing effective policies and programmes to prevent violence.

For the purposes of this report, youths are defined as people between the ages of 10 and 29 years. High rates of offending and victimization nevertheless often extend as far as the 30–35 years age bracket, and this group of older, young adults should also be taken into account in trying to understand and prevent youth violence.
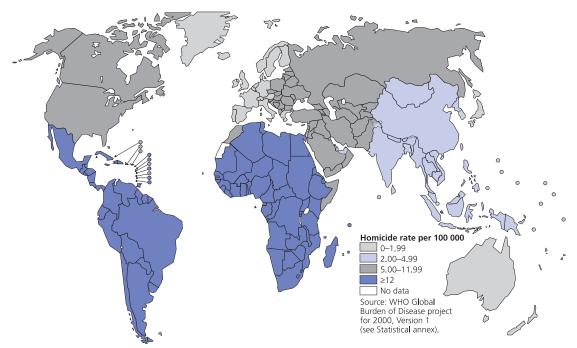
The extent of the problem

Youth homicide rates

In 2000, an estimated 199 000 youth homicides (9.2 per 100 000 population) occurred globally. In other words, an average of 565 children, adolescents and young adults between the ages of 10 and 29 years die each day as a result of interpersonal violence. Homicide rates vary considerably by region, ranging from 0.9 per 100 000 in the high-income countries of Europe and parts of Asia and the Pacific, to 17.6 per 100 000 in Africa and 36.4 per 100 000 in Latin America (see Figure 2.1).

There are also wide variations between individual countries in youth homicide rates (see Table 2.1). Among the countries for which WHO data are available, the rates are highest in Latin America (for example, 84.4 per 100 000 in Colombia and 50.2 per 100 000 in El Salvador), the Caribbean (for example, 41.8 per 100 000 in Puerto Rico), the Russian Federation (18.0 per 100 000) and some countries of south-eastern Europe (for example, 28.2 per 100 000 in Albania). Apart from the United States of America, where the rate stands at 11.0 per 100 000, most of the countries with youth homicide rates above 10.0 per 100 000 are either developing countries or those experiencing rapid social and economic changes.

The countries with low rates of youth homicide tend to be in Western Europe – for example, France (0.6 per 100 000), Germany (0.8 per 100 000), and the United Kingdom (0.9 per 100 000) – or in Asia, such as Japan (0.4 per 100 000). Several countries have fewer than 20 youth homicides a year.

Almost everywhere, youth homicide rates are substantially lower among females than among males, suggesting that being a male is a strong demographic risk factor. The ratio of the male youth homicide rate to the female rate tends to be higher in those countries with high male rates. For example, the ratio is 13.1:1 in Colombia, 14.6:1 in El Salvador, 16.0:1 in the Philippines and 16.5:1 in Venezuela. Where male rates are lower, the ratio is usually lower

FIGURE 2.1

Estimated homicide rates among youths aged 10–29 years, 2000[a]

Homicide rate per 100 000
- 0–1.99
- 2.00–4.99
- 5.00–11.99
- ≥12
- No data

Source: WHO Global
Burden of Disease project
for 2000, Version 1
(see Statistical annex).

[a] Rates were calculated by WHO region and country income level and then grouped according to magnitude.

– such as in Hungary (0.9:1), and the Netherlands and the Republic of Korea (1.6:1). The variation between countries in the female homicide rate is considerably less than the variation in the male rate.

Epidemiological findings on youth homicide are scant in those countries and regions where WHO mortality data are lacking or incomplete. Where proper data on youth homicide do exist, such as in several studies in countries in Africa (including Nigeria, South Africa and the United Republic of Tanzania) and in Asia and the Pacific (such as China (including the Province of Taiwan) and Fiji) (*9–16*), similar epidemiological patterns have been reported, namely:
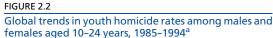
— a marked preponderance of male over female homicide victims;

— a substantial variation in rates between countries and between regions.
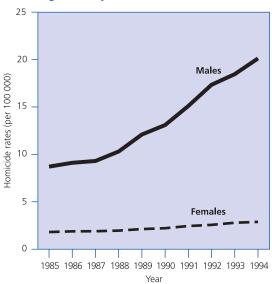
Trends in youth homicides

Between 1985 and 1994, youth homicide rates increased in many parts of the world, especially among youths in the 10–24-year-old age bracket.

There were also important differences between the sexes, and between countries and regions. In general, rates of homicides among youths aged 15–19 and 20–24 years increased more than the rate among 10–14-year-olds. Male rates rose more than female rates (see Figure 2.2), and increases in youth homicide rates were more pronounced in developing countries and economies in transition. Furthermore, the increases in youth homicide rates were generally associated with increases in the use of guns as the method of attack (see Figure 2.3).

While youth homicide rates in Eastern Europe and the former Soviet Union increased dramatically after the collapse of communism there in the late 1980s and early 1990s, rates in Western Europe remained generally low and stable. In the Russian Federation, in the period 1985–1994, rates in the 10–24-year-old age bracket increased by over 150%, from 7.0 per 100 000 to 18.0 per 100 000, while in Latvia there was an increase of 125%, from 4.4 per 100 000 to 9.9 per 100 000. In the same period in many of these countries there was a steep increase in the proportion of deaths from gunshot wounds – the proportion
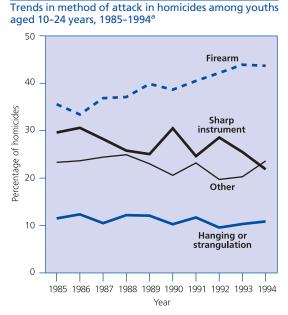
FIGURE 2.2

Global trends in youth homicide rates among males and
females aged 10–24 years, 1985–1994[a]

[a] Based on WHO mortality data from 66 countries.

more than doubling in Azerbaijan, Latvia and the
Russian Federation.

In the United Kingdom, in contrast, homicide
rates for 10–24-year-olds over the same 10-year
period increased by 37.5% (from 0.8 per 100 000

FIGURE 2.3

Trends in method of attack in homicides among youths
aged 10–24 years, 1985–1994[a]

[a] Based on WHO mortality data from 46 countries.

to 1.1 per 100 000). In France, youth homicide
rates increased by 28.6% over the same period
(from 0.7 per 100 000 to 0.9 per 100 000). In
Germany, youth homicide rates increased by
12.5% between 1990 and 1994 (from 0.8 per
100 000 to 0.9 per 100 000). While rates of youth
homicide increased in these countries over the
period, the proportion of youth homicides involv-
ing guns remained at around 30%.

Remarkable differences in youth homicide
trends for the period 1985–1994 were observed
across the American continent. In Canada, where
around one-third of youth homicides involve guns,
rates fell by 9.5%, from 2.1 per 100 000 to 1.9 per
100 000. In the United States, the trend was exactly
the reverse, with over 70% of youth homicides
involving guns and an increase in homicides of
77%, from 8.8 per 100 000 to 15.6 per 100 000. In
Chile, rates in the period remained low and stable,
at around 2.4 per 100 000. In Mexico, where guns
account for some 50% of all youth homicides, rates
stayed high and stable, rising from 14.7 per
100 000 to 15.6 per 100 000. On the other hand,
in Colombia, youth homicides increased by 159%,
from 36.7 per 100 000 to 95.0 per 100 000 (with
80% of cases, at the end of this period, involving
guns), and in Venezuela by 132%, from 10.4 per
100 000 to 24.1 per 100 000.

In Australia, the youth homicide rate declined
from 2.0 per 100 000 in 1985 to 1.5 per 100 000
in 1994, while in neighbouring New Zealand it
more than doubled in the same period, from 0.8
per 100 000 to 2.2 per 100 000. In Japan, rates in
the period stayed low, at around 0.4 per 100 000.

Non-fatal violence

In some countries, data on youth homicide can be
read alongside studies of non-fatal violence. Such
comparisons give a more complete picture of the
problem of youth violence. Studies of non-fatal
violence reveal that for every youth homicide there
are around 20–40 victims of non-fatal youth violence
receiving hospital treatment. In some countries,
including Israel, New Zealand and Nicaragua, the
ratio is even greater (*17–19*). In Israel, among those
under the age of 18 years, the annual incidence of

violent injuries receiving emergency room treatment is 196 per 100 000, compared with youth homicide rates of 1.3 per 100 000 in males and 0.4 per 100 000 in females (19).

As with fatal youth violence, the majority of victims of non-fatal violence treated in hospitals are males (20–26), although the ratio of male to female cases is somewhat lower than for fatalities. A study in Eldoret, Kenya, for instance, found the ratio of male to female victims of non-fatal violence to be 2.6:1 (22). Other research has found a ratio of around 3:1 in Jamaica, and of 4–5:1 in Norway (23, 24).

The rates of non-fatal violent injuries tend to increase dramatically during mid-adolescence and young adulthood. A survey of homes in Johannesburg, South Africa, found that 3.5% of victims of violence were 13 years old or younger, compared with 21.9% aged 14–21 years and 52.3% aged 22–35 years (27). Studies conducted in Jamaica, Kenya, Mozambique and a number of cities in Brazil, Chile, Colombia, Costa Rica, El Salvador and Venezuela also show high rates of non-fatal injuries from violence among adolescents and young adults (22, 28, 29).

Compared with fatal youth violence, non-fatal injuries resulting from violence involve substantially fewer firearm attacks and a correspondingly greater use of the fists and feet, and other weapons, such as knives or clubs. In Honduras, 52% of non-fatal attacks on youths involved weapons other

TABLE 2.1

Homicide rates among youths aged 10–29 years by country or area: most recent year available[a]

Country or area	Year	Total number of deaths	Homicide rate per 100 000 population aged 10–29 years			
			Total	Males	Females	Male:female ratio
Albania	1998	325	28.2	53.5	5.5	9.8
Argentina	1996	628	5.2	8.7	1.6	5.5
Armenia	1999	26	1.9	3.1	—[b]	—[c]
Australia	1998	88	1.6	2.2	1.0	2.3
Austria	1999	7	—[b]	—[b]	—[b]	—[c]
Azerbaijan	1999	194	6.7	12.1	—[b]	—[c]
Belarus	1999	267	8.8	13.2	4.3	3.1
Belgium	1995	37	1.4	1.8	—[b]	—[c]
Bosnia and Herzegovina	1991	2	—[b]	—[b]	—[b]	—[c]
Brazil	1995	20 386	32.5	59.6	5.2	11.5
Bulgaria	1999	51	2.2	3.2	—[b]	—[c]
Canada	1997	143	1.7	2.5	0.9	2.7
Chile	1994	146	3.0	5.1	—[b]	—[c]
China						
Hong Kong SAR	1996	16	—[b]	—[b]	—[b]	—[c]
Selected rural and urban areas	1999	778	1.8	2.4	1.2	2.1
Colombia	1995	12 834	84.4	156.3	11.9	13.1
Costa Rica	1995	75	5.5	8.4	—[b]	—[c]
Croatia	1999	21	1.6	—[b]	—[b]	—[c]
Cuba	1997	348	9.6	14.4	4.6	3.2
Czech Republic	1999	36	1.2	1.4	—[b]	—[c]
Denmark	1996	20	1.5	—[b]	—[b]	—[c]
Ecuador	1996	757	15.9	29.2	2.3	12.4
El Salvador	1993	1 147	50.2	94.8	6.5	14.6
Estonia	1999	33	7.7	13.3	—[b]	—[c]
Finland	1998	19	—[b]	—[b]	—[b]	—[c]
France	1998	91	0.6	0.7	0.4	1.9
Georgia	1992	4	—[b]	—[b]	—[b]	—[c]
Germany	1999	156	0.8	1.0	0.6	1.6
Greece	1998	25	0.9	1.4	—[b]	—[c]
Hungary	1999	41	1.4	1.4	1.5	0.9
Ireland	1997	10	—[b]	—[b]	—[b]	—[c]
Israel	1997	13	—[b]	—[b]	—[b]	—[c]
Italy	1997	210	1.4	2.3	0.5	4.5
Jamaica	1991	2	—[b]	—[b]	—[b]	—[c]
Japan	1997	127	0.4	0.5	0.3	1.7
Kazakhstan	1999	631	11.5	18.0	5.0	3.6
Kuwait	1999	14	—[b]	—[b]	—[b]	—[c]
Kyrgyzstan	1999	88	4.6	6.7	2.4	2.8
Latvia	1999	55	7.8	13.1	—[b]	—[c]
Lithuania	1999	59	5.4	8.4	—[b]	—[c]
Mauritius	1999	4	—[b]	—[b]	—[b]	—[c]
Mexico	1997	5 991	15.3	27.8	2.8	9.8
Netherlands	1999	60	1.5	1.8	1.2	1.6
New Zealand	1998	20	1.8	—[b]	—[b]	—[c]
Nicaragua	1996	139	7.3	12.5	—[b]	—[c]
Norway	1997	11	—[b]	—[b]	—[b]	—[c]
Panama (excluding Canal Zone)	1997	151	14.4	25.8	—[b]	—[c]
Paraguay	1994	191	10.4	18.7	—[b]	—[c]

TABLE 2.1 *(continued)*

Country or area	Year	Total number of deaths	Homicide rate per 100 000 population aged 10–29 years			
			Total	Males	Females	Male:female ratio
Philippines	1993	3 252	12.2	22.7	1.4	16.0
Poland	1995	186	1.6	2.3	0.8	2.7
Portugal	1999	37	1.3	2.1	—[b]	—[c]
Puerto Rico	1998	538	41.8	77.4	5.3	14.5
Republic of Korea	1997	282	1.7	2.1	1.3	1.6
Republic of Moldova	1999	96	7.7	12.8	—[b]	—[c]
Romania	1999	169	2.3	3.5	1.1	3.1
Russian Federation	1998	7 885	18.0	27.5	8.0	3.4
Singapore	1998	15	—[b]	—[b]	—[b]	—[c]
Slovakia	1999	26	1.5	2.4	—[b]	—[c]
Slovenia	1999	4	—[b]	—[b]	—[b]	—[c]
Spain	1998	96	0.8	1.2	0.4	2.9
Sweden	1996	16	—[b]	—[b]	—[b]	—[c]
Switzerland	1996	17	—[b]	—[b]	—[b]	—[c]
Tajikistan	1995	124	5.5	9.7	—[b]	—[c]
Thailand	1994	1 456	6.2	10.0	2.2	4.4
The former Yugoslav Republic of Macedonia	1997	6	—[b]	—[b]	—[b]	—[c]
Trinidad and Tobago	1994	55	11.4	15.4	—[b]	—[c]
Turkmenistan	1998	131	6.9	12.4	—[b]	—[c]
Ukraine	1999	1 273	8.7	13.0	4.3	3.1
United Kingdom	1999	139	0.9	1.4	0.4	3.9
England and Wales	1999	91	0.7	1.0	0.3	3.4
Northern Ireland	1999	7	—[b]	—[b]	—[b]	—[c]
Scotland	1999	41	3.1	5.3	—[b]	—[c]
United States of America	1998	8 226	11.0	17.9	3.7	4.8
Uruguay	1990	36	3.6	4.5	—[b]	—[c]
Uzbekistan	1998	249	2.6	3.8	1.3	3.0
Venezuela	1994	2 090	25.0	46.4	2.8	16.5

SAR: Special Administrative Region.
[a] Most recent year available between 1990 and 2000 for countries with ⩾1 million population.
[b] Fewer than 20 deaths reported; rate not calculated.
[c] Rate ratio not calculated if fewer than 20 deaths reported for either males or females.

Risk behaviours for youth violence

Participating in physical fights, bullying and carrying of weapons are important risk behaviours for youth violence. Most studies examining these behaviours have involved primary and secondary school pupils, who differ considerably from children and adolescents who have left or dropped out of school. Consequently, the applicability of the results of these studies to youths who are no longer attending school is likely to be limited.

Involvement in physical fighting is very common among school-age children in many parts of the world (*32–38*). Around one-third of students report having been involved in fighting, with males 2–3 times more likely than females to have fought. Bullying is also prevalent among school-age children (*39, 40*). In a study of health behaviour among school-aged children in 27 countries, the majority of 13-year-olds in most countries were found to have engaged in bullying at least some of the time (see Table 2.2) (*40*). Apart from being forms of aggression, bullying and physical fighting can also lead to more serious forms of violence (*41*).

The carrying of weapons is both an important risk behaviour and a predominantly male activity among young people of school age. There are, however, major variations in the prevalence of weapon carrying as reported by adolescents in different countries. In Cape Town, South Africa, 9.8% of males and 1.3% of females in secondary schools reported carrying knives to school during the previous 4 weeks (*42*). In Scotland, 34.1% of males and 8.6% of females aged 11–16 years said that they had carried weapons at least once during

than guns, and in a Colombian study only 5% of non-fatal assaults were gun-related (compared with over 80% of youth homicides involving firearms) (*25, 30*). In South Africa, gunshot wounds account for some 16% of all violent injuries presenting at hospitals, as compared with 46% of all homicides (*31*). However, direct comparison between countries and subgroups within countries using data on non-fatal violence registered at health services can be misleading. Differences in the rates of emergency room presentation for gunshot wounds, for instance, may simply reflect the fact that pre-hospital and emergency medical care varies between different settings.

TABLE 2.2

Bullying behaviour among 13-year-olds, 1997–1998

Country	Engaged in bullying this school term?		
	Have not %	Sometimes %	Once a week %
Austria	26.4	64.2	9.4
Belgium (Flemish region)	52.2	43.6	4.1
Canada	55.4	37.3	7.3
Czech Republic	69.1	27.9	3.0
Denmark	31.9	58.7	9.5
England	85.2	13.6	1.2
Estonia	44.3	50.6	5.1
Finland	62.8	33.3	3.8
France	44.3	49.1	6.6
Germany	31.2	60.8	7.9
Greece	76.8	18.9	4.3
Greenland	33.0	57.4	9.6
Hungary	55.8	38.2	6.0
Israel	57.1	36.4	6.6
Latvia	41.2	49.1	9.7
Lithuania	33.3	57.3	9.3
Northern Ireland	78.1	20.6	1.3
Norway	71.0	26.7	2.3
Poland	65.1	31.3	3.5
Portugal	57.9	39.7	2.4
Republic of Ireland	74.2	24.1	1.7
Scotland	73.9	24.2	1.9
Slovakia	68.9	27.3	3.9
Sweden	86.8	11.9	1.2
Switzerland	42.5	52.6	5.0
United States of America	57.5	34.9	7.6
Wales	78.6	20.0	1.4

their lifetime, with drug users significantly more likely than non-drug users to have done so (*43*). In the Netherlands, 21% of secondary-school pupils admitted to possessing a weapon, and 8% had actually brought weapons to school (*44*). In the United States, a national survey of students in grades 9–12 found that 17.3% had carried a weapon in the previous 30 days and 6.9% had carried a weapon on the school premises (*32*).

The dynamics of youth violence

Patterns of behaviour, including violence, change over the course of a person's life. The period of adolescence and young adulthood is a time when violence, as well as other types of behaviours, are often given heightened expression (*45*). Understanding when and under what conditions violent behaviour typically occurs as a person develops can

help in formulating interventions and policies for prevention that target the most critical age groups (*3*).

How does youth violence begin?

Youth violence can develop in different ways. Some children exhibit problem behaviour in early childhood that gradually escalates to more severe forms of aggression before and during adolescence. Between 20% and 45% of boys and 47% and 69% of girls who are serious violent offenders at the age of 16–17 years are on what is termed a "life-course persistent developmental pathway" (*3, 46–50*). Young people who fit into this category commit the most serious violent acts and often continue their violent behaviour into adulthood (*51–54*).

Longitudinal studies have examined in what ways aggression can continue from childhood to adolescence and from adolescence to adulthood to create a pattern of persistent offending throughout a person's life. Several studies have shown that childhood aggression is a good predictor of violence in adolescence and early adulthood. In a study in Örebro, Sweden (*55*), two-thirds of a sample of around 1000 young males who displayed violent behaviour up to the age of 26 years had already scored highly for aggressiveness at the ages of 10 and 13 years, compared with about one-third of all boys. Similarly, in a follow-up study in Jyväskylä, Finland, of nearly 400 youths (*56*), ratings by peers of aggression at the ages of 8 and 14 years significantly predicted violence up to the age of 20.

There is also evidence of a continuity in aggressive behaviour from adolescence to adulthood. In a study in Columbus, OH, United States, 59% of youths arrested for violent offences before the age of 18 years were rearrested as adults, and 42% of these adult offenders were charged with at least one serious violent offence, such as homicide, aggravated assault or rape (*57*). A greater proportion of those arrested as young people for offences involving serious violence were rearrested as adults than was the case for young people arrested for offences involving minor violence. A study on the development of delinquency in Cambridge, England, found that one-third of young males who had been convicted of offences involving violence

before the age of 20 years were convicted again between the ages of 21 and 40 years, compared with only 8% of those not convicted for violent offences during their teenage years (*58*).

The existence of a life-course persistent developmental pathway helps to explain the continuity over time in aggressive and violent behaviour. That is, there are certain individuals who persist in having a greater underlying tendency than others towards aggressive or violent behaviour. In other words, those who are relatively more aggressive at a given age also tend to be relatively more aggressive later on, even though their absolute levels of violence may vary.

There may also be progressions over time from one type of aggression to another. For instance, in a longitudinal study in Pittsburgh, PA, United States, of over 1 500 boys originally studied at 7, 10 and 13 years of age, Loeber et al. reported that childhood aggression tended to develop into gang fighting and later into youth violence (*59*).

Lifetime offenders, though, represent only a small proportion of those committing violence. Most violent young people engage in violent behaviour over much shorter periods. Such people are termed ''adolescence-limited offenders''. Results from the National Youth Survey conducted in the United States – based on a national sample of young people aged 11–17 years in 1976, who were followed until the age of 27–33 years – show that although a small proportion of youths continued to commit violence into and through adulthood, some three-quarters of young people who had committed serious violence ceased their violent behaviour after around 1–3 years (*3*). The majority of young people who become violent are adolescence-limited offenders who, in fact, show little or no evidence of high levels of aggression or other problem behaviours during their childhood (*3*).

Situational factors

Among adolescence-limited offenders, certain situational factors may play an important role in causing violent behaviour. A situational analysis – explaining the interactions between the would-be perpetrator and victim in a given situation – describes how the potential for violence might develop into actual violence. Situational factors include:

— the motives for violent behaviour;
— where the behaviour occurs;
— whether alcohol or weapons are present;
— whether people other than the victim and offender are present;
— whether other actions (such as burglary) are involved that could be conducive to violence.

Motives for youth violence vary according to the age of the participants and whether others are present. A study of delinquency in Montreal, Canada, showed that, when the perpetrators were in their teenage years or early twenties, about half of violent personal attacks were motivated by the search for excitement, often with co-offenders, and half by rational or utilitarian objectives (*60*). For all crimes, however, the main motivation switched from being thrill-seeking in the perpetrators' teenage years to utilitarian – involving prior planning, psychological intimidation and the use of weapons – in their twenties (*61*).

The National Survey of Youth in the United States found that assaults were generally committed in retaliation for a previous attack, out of revenge, or because of provocation or anger (*61*). In the study in Cambridge mentioned above, the motives for physical fights depended on whether a boy fought alone or with a group (*62*). In individual fights, a boy was usually provoked, became angry and hit to hurt his opponent or to release internal tensions. In group fights, boys often became involved to help friends or because they were attacked – rarely because they were angry. The group fights, though, were on the whole more serious. They often escalated from minor incidents, typically occurred in bars or on the street, and were more likely to involve weapons, lead to injuries, and involve the police.

Drunkenness is an important immediate situational factor that can precipitate violence. In a Swedish study, about three-quarters of violent offenders and around half the victims of violence were intoxicated at the time of the incident, and in the Cambridge study, many of the boys fought after drinking (*62, 63*).

An interesting characteristic of young violent offenders that may make them more likely to become entangled in situations leading to violence is their tendency to be involved in a broad range of crimes, as well as their usually having a range of problem behaviours. Generally, young violent offenders are versatile rather than specialized in the types of crimes they commit. In fact, violent young people typically commit more non-violent offences than violent offences (64–66). In the Cambridge study, convicted violent delinquents up to the age of 21 years had nearly three times as many convictions for non-violent offences as for violent offences (58).

What are the risk factors for youth violence?

Individual factors

At the individual level, factors that affect the potential for violent behaviour include biological, psychological and behavioural characteristics. These factors may already appear in childhood or adolescence, and to varying degrees they may be influenced by the person's family and peers and by other social and cultural factors.

Biological characteristics

Among possible biological factors, there have been studies on injuries and complications associated with pregnancy and delivery, because of the suggestion that these might produce neurological damage, which in turn could lead to violence. In a study in Copenhagen, Denmark, Kandel & Mednick (67) followed up over 200 children born during 1959–1961. Their research showed that complications during delivery were a predictor for arrests for violence up to the age of 22 years. Eighty per cent of youths arrested for committing violent offences scored in the high range for delivery complications at birth, compared with 30% of those arrested for committing property-related offences and 47% of youths with no criminal record. Pregnancy complications, on the other hand, did not significantly predict violence.

Interestingly, delivery complications were strongly associated with future violence when a parent had a history of psychiatric illness (68). In these cases, 32% of males with significant delivery complications were arrested for violence, compared with 5% of those with only minor or no delivery complications. Unfortunately, these results were not replicated by Denno in the Philadelphia Biosocial Project (69) – a study of nearly 1000 African-American children in Philadelphia, PA, United States, who were followed from birth to 22 years of age. It may therefore be that pregnancy and delivery complications predict violence only or mainly when they occur in combination with other problems within the family.

Low heart rates – studied mainly in boys – are associated with sensation-seeking and risk-taking, both characteristics that may predispose boys to aggression and violence in an attempt to increase stimulation and arousal levels (70–73). High heart rates, however, especially in infants and young children, are linked to anxiety, fear and inhibitions (71).

Psychological and behavioural characteristics

Among the major personality and behavioural factors that may predict youth violence are hyperactivity, impulsiveness, poor behavioural control and attention problems. Nervousness and anxiety, though, are negatively related to violence. In a follow-up study of over 1000 children in Dunedin, New Zealand, boys with violent convictions up to the age of 18 years were significantly more likely to have had poor scores in behavioural control (for example, impulsiveness and lack of persistence) at the age of 3–5 years, compared with boys with no convictions or with convictions for non-violent offences (74). In the same study, personality factors of constraint (such as cautiousness and the avoidance of excitement) and of negative emotionality (such as nervousness and alienation) at the age of 18 years were significantly inversely correlated with convictions for violence (75).

Longitudinal studies conducted in Copenhagen, Denmark (68), Örebro, Sweden (76), Cambridge, England (77), and Pittsburgh, PA, United States (77), also showed links between these personality

traits and both convictions for violence and self-reported violence. Hyperactivity, high levels of daring or risk-taking behaviour, and poor concentration and attention difficulties before the age of 13 years all significantly predicted violence into early adulthood. High levels of anxiety and nervousness were negatively related to violence in the studies in Cambridge and in the United States.

Low intelligence and low levels of achievement in school have consistently been found to be associated with youth violence (*78*). In the Philadelphia project (*69*), poor intelligence quotient (IQ) scores in verbal and performance IQ tests at the ages of 4 and 7 years, and low scores in standard school achievement tests at 13–14 years, all increased the likelihood of being arrested for violence up to the age of 22 years. In a study in Copenhagen, Denmark, of over 12 000 boys born in 1953, low IQ at 12 years of age significantly predicted police-recorded violence between the ages of 15 and 22 years. The link between low IQ and violence was strongest among boys from lower socioeconomic groups.

Impulsiveness, attention problems, low intelligence and low educational attainment may all be linked to deficiencies in the executive functions of the brain, located in the frontal lobes. These executive functions include: sustaining attention and concentration, abstract reasoning and concept formation, goal formulation, anticipation and planning, effective self-monitoring and self-awareness of behaviour, and inhibitions regarding inappropriate or impulsive behaviours (*79*). Interestingly, in another study in Montreal – of over 1100 children initially studied at 6 years of age and followed onwards from the age of 10 years – executive functions at 14 years of age, measured with cognitive-neuropsychological tests, provided a significant means of differentiating between violent and non-violent boys (*80*). Such a link was independent of family factors, such as socioeconomic status, the parents' age at first birth, their educational level, or separation or divorce within the family.

Relationship factors

Individual risk factors for youth violence, such as the ones described above, do not exist in isolation from other risk factors. Factors associated with the interpersonal relations of young people – with their family, friends and peers – can also strongly affect aggressive and violent behaviour and shape personality traits that, in turn, can contribute to violent behaviour. The influence of families is usually the greatest in this respect during childhood, while during adolescence friends and peers have an increasingly important effect (*81*).

Family influences

Parental behaviour and the family environment are central factors in the development of violent behaviour in young people. Poor monitoring and supervision of children by parents and the use of harsh, physical punishment to discipline children are strong predictors of violence during adolescence and adulthood. In her study of 250 boys in Boston, MA, United States, McCord (*82*) found that poor parental supervision, parental aggression and harsh discipline at the age of 10 years strongly increased the risk of later convictions for violence up to 45 years of age.

Eron, Huesmann & Zelli (*83*) followed up almost 900 children in New York, NY, United States. They found that harsh, physical punishment by parents at the age of 8 years predicted not only arrests for violence up to the age of 30 years, but also – for boys – the severity of punishment of their own children and their own histories of spouse abuse. In a study of over 900 abused children and nearly 700 controls, Widom showed that recorded physical abuse and neglect as a child predicted later arrests for violence – independently of other predictors such as sex, ethnicity and age (*84*). Other studies have recorded similar findings (*77, 85, 86*).

Violence in adolescence and adulthood has also been strongly linked to parental conflict in early childhood (*77, 82*) and to poor attachment between parents and children (*87, 88*). Other factors include: a large number of children in the family (*65, 77*); a mother who had her first child at an early age, possibly as a teenager (*77, 89, 90*); and a low level of family cohesion (*91*). Many of these factors, in the absence of other social support, can affect children's social and emotional functioning and behaviour.

McCord (*87*), for example, showed that violent offenders were less likely than non-violent offenders to have experienced parental affection and good discipline and supervision.

Family structure is also an important factor for later aggression and violence. Findings from studies conducted in New Zealand, the United Kingdom and the United States show that children growing up in single-parent households are at greater risk for violence (*74, 77, 92*). In a study of 5300 children from England, Scotland and Wales, for example, experiencing parental separation between birth and the age of 10 years increased the likelihood of convictions for violence up to the age of 21 years (*92*). In the study in Dunedin, New Zealand, living with a single parent at the age of 13 years predicted convictions for violence up to the age of 18 years (*74*). The more restricted scope for support and probable fewer economic resources in these situations may be reasons why parenting often suffers and the risk of becoming involved in violence increases for youths.

In general, low socioeconomic status of the family is associated with future violence. For example, in a national survey of young people in the United States, the prevalence of self-reported assault and robbery among youths from low socioeconomic classes was about twice that among middle-class youths (*93*). In Lima, Peru, low educational levels of the mother and high housing density were both found to be associated with youth violence (*94*). A study of young adults in São Paulo, Brazil, found that, after adjusting for sex and age, the risk of being a victim of violence was significantly higher for youths from low socio-economic classes compared with those from high socioeconomic classes (*95*). Similar results have been obtained from studies in Denmark (*96*), New Zealand (*74*) and Sweden (*97*).

Given the importance of parental supervision, family structure and economic status in determining the prevalence of youth violence, an increase in violence by young people would be expected where families have disintegrated through wars or epidemics, or because of rapid social change. Taking the case of epidemics, some 13 million

children worldwide have lost one or both parents to AIDS, more than 90% of them in sub-Saharan Africa, where millions more children are likely to be orphaned in the next few years (*98*). The onslaught of AIDS on people of reproductive age is producing orphans at such a rate that many communities can no longer rely on traditional structures to care for these children. The AIDS epidemic is thus likely to have serious adverse implications for violence among young people, particularly in Africa, where rates of youth violence are already extremely high.

Peer influences

Peer influences during adolescence are generally considered positive and important in shaping interpersonal relationships, but they can also have negative effects. Having delinquent friends, for instance, is associated with violence in young people (*88*). The results of studies in developed countries (*78, 88*) are consistent with a study in Lima, Peru (*94*), which found a correlation between violent behaviour and having friends who used drugs. The causal direction in this correlation − whether having delinquent friends comes before or after being a violent offender − is, however, not clear (*99*). In their study, Elliott & Menard concluded that delinquency caused peer bonding and, at the same time, that bonding with delinquent peers caused delinquency (*100*).

Community factors

The communities in which young people live are an important influence on their families, the nature of their peer groups, and the way they may be exposed to situations that lead to violence. Generally speaking, boys in urban areas are more likely to be involved in violent behaviour than those living in rural areas (*77, 88, 93*). Within urban areas, those living in neighbourhoods with high levels of crime are more likely to be involved in violent behaviour than those living in other neighbourhoods (*77, 88*).

Gangs, guns and drugs

The presence of gangs (see Box 2.1), guns and drugs in a locality is a potent mixture, increasing

BOX 2.1

A profile of gangs

Youth gangs are found in all regions of the world. Although their size and nature may vary greatly – from mainly social grouping to organized criminal network – they all seem to answer a basic need to belong to a group and create a self-identity.

In the Western Cape region of South Africa, there are about 90 000 members of gangs, while in Guam, some 110 permanent gangs were recorded in 1993, around 30 of them hard-core gangs. In Port Moresby, Papua New Guinea, four large criminal associations with numerous subgroups have been reported. There are an estimated 30 000–35 000 gang members in El Salvador and a similar number in Honduras, while in the United States, some 31 000 gangs were operating in 1996 in about 4800 cities and towns. In Europe, gangs exist to varying extents across the continent, and are particularly strong in those countries in economic transition such as the Russian Federation.

Gangs are primarily a male phenomenon, though in countries such as the United States, girls are forming their own gangs. Gang members can range in age from 7 to 35 years, but typically are in their teens or early twenties. They tend to come from economically deprived areas, and from low-income and working-class urban and suburban environments. Often, gang members may have dropped out of school and hold low-skilled or low-paying jobs. Many gangs in high-income and middle-income countries consist of people from ethnic or racial minorities who may be socially very marginalized.

Gangs are associated with violent behaviour. Studies have shown that as youths enter gangs they become more violent and engage in riskier, often illegal activities. In Guam, over 60% of all violent crime reported to the police is committed by young people, much of it related to activities of the island's hard-core gangs. In Bremen, Germany, violence by gang members accounts for almost half of reported violent offences. In a longitudinal study of nearly 1000 youths in Rochester, NY, United States, some 30% of the sample were gang members, but they accounted for around 70% of self-reported violent crimes and 70% of drug dealing.

A complex interaction of factors leads young people to opt for gang life. Gangs seem to proliferate in places where the established social order has broken down and where alternative forms of shared cultural behaviour are lacking. Other socioeconomic, community and interpersonal factors that encourage young people to join gangs include:
— a lack of opportunity for social or economic mobility, within a society that aggressively promotes consumption;
— a decline locally in the enforcement of law and order;
— interrupted schooling, combined with low rates of pay for unskilled labour;
— a lack of guidance, supervision and support from parents and other family members;
— harsh physical punishment or victimization in the home;
— having peers who are already involved in a gang.

Actively addressing these underlying factors that encourage youth gangs to flourish, and providing safer, alternative cultural outlets for their prospective members, can help eliminate a significant proportion of violent crime committed by gangs or otherwise involving young people.

the likelihood of violence. In the United States, for example, the presence together in neighbourhoods of these three items would appear to be an important factor in explaining why the juvenile arrest rate for homicide more than doubled between 1984 and 1993 (from 5.4 per 100 000 to 14.5 per 100 000) (*97, 101, 102*). Blumstein suggested that this rise was linked to increases occurring over the same period in the carrying of guns, in the number of gangs and in battles fought over the selling of crack cocaine (*103*). In the Pittsburgh study already mentioned, initiation into

dealing in drugs coincided with a significant increase in carrying weapons, with 80% of 19-year-olds who sold hard drugs (such as cocaine), also carrying a gun (*104*). In Rio de Janeiro, Brazil, where the majority of victims and perpetrators of homicide are 25 years of age or younger, drug dealing is responsible for a large proportion of homicides, conflicts and injuries (*105*). In other parts of Latin America and the Caribbean, youth gangs involved in drug trafficking display higher levels of violence than those that are not (*106*).

Social integration

The degree of social integration within a community also affects rates of youth violence. Social capital is a concept that attempts to measure such community integration. It refers, roughly speaking, to the rules, norms, obligations, reciprocity and trust that exist in social relations and institutions (*107*). Young people living in places that lack social capital tend to perform poorly in school and have a greater probability of dropping out altogether (*108*).

Moser & Holland (*109*) studied five poor urban communities in Jamaica. They found a cyclical relationship between violence and the destruction of social capital. When community violence occurred, physical mobility in the particular locality was restricted, employment and educational opportunities were reduced, businesses were reluctant to invest in the area and local people were less likely to build new houses or repair or improve existing property. This reduction in social capital – the increased mistrust resulting from the destruction of infrastructure, amenities and opportunities – increased the likelihood of violent behaviour, especially among young people. A study on the relation between social capital and crime rates in a wide range of countries during the period 1980–1994, found that the level of trust among community members had a strong effect on the incidence of violent crimes (*107*). Wilkinson, Kawachi & Kennedy (*110*) showed that indices of social capital reflecting low social cohesion and high levels of interpersonal mistrust were linked with both higher homicide rates and greater economic inequality.

Societal factors

Several societal factors may create conditions conducive to violence among young people. Much of the evidence related to these factors, though, is based on cross-sectional or ecological studies and is mainly useful for identifying important associations, rather than direct causes.

Demographic and social changes

Rapid demographic changes in the youth population, modernization, emigration, urbanization and changing social policies have all been linked with an increase in youth violence (*111*). In places that have suffered economic crises and ensuing structural adjustment policies – such as in Africa and parts of Latin America – real wages have often declined sharply, laws intended to protect labour have been weakened or discarded, and a substantial decline in basic infrastructure and social services has occurred (*112, 113*). Poverty has become heavily concentrated in cities experiencing high population growth rates among young people (*114*).

In their demographic analysis of young people in Africa, Lauras-Locoh & Lopez-Escartin (*113*) suggest that the tension between a rapidly swelling population of young people and a deteriorating infrastructure has resulted in school-based and student revolts. Diallo Co-Trung (*115*) found a similar situation of student strikes and rebellions in Senegal, where the population under 20 years of age doubled between 1970 and 1988, during a period of economic recession and the implementation of structural adjustment policies. In a survey of youths in Algeria, Rarrbo (*116*) found that rapid demographic growth and accelerating urbanization together created conditions, including unemployment and grossly inadequate housing, that in turn led to extreme frustration, anger and pent-up tensions among youths. Young people, as a result, were more likely to turn to petty crime and violence, particularly under the influence of peers.

In Papua New Guinea, Dinnen (*117*) describes the evolution of ''raskolism'' (criminal gangs) in the broader context of decolonization and the ensuing social and political change, including rapid population growth unmatched by economic growth. Such a

phenomenon has also been cited as a concern in some of the former communist economies (*118*), where – as unemployment has soared, and the social welfare system been severely cut – young people have lacked legitimate incomes and occupations, as well as the necessary social support between leaving school and finding work. In the absence of such support, some have turned to crime and violence.

Income inequality

Research has shown links between economic growth and violence, and between income inequality and violence (*119*). Gartner, in a study of 18 industrialized countries during the period 1950–1980 (*6*), found that income inequality, as measured by the Gini coefficient, had a significant and positive effect on the homicide rate. Fajnzylber, Lederman & Loayza (*120*) obtained the same results in an investigation of 45 industrialized and developing countries between 1965 and 1995. The rate of growth of the GDP was also significantly negatively associated with the homicide rate, but this effect was in many cases offset by rising levels of income inequality. Unnithan & Whitt came to similar conclusions in their cross-national study (*121*), namely, that income inequality was strongly linked with homicide rates, and that such rates also decreased as the per capita GDP increased.

Political structures

The quality of governance in a country, both in terms of the legal framework and the policies offering social protection, is an important determinant of violence. In particular, the extent to which a society enforces its existing laws on violence, by arresting and prosecuting offenders, can act as a deterrent against violence. Fajnzylber, Lederman & Loayza (*120*) found that the arrest rate for homicides had a significant negative effect on the homicide rate. In their study, objective measures of governance (such as arrest rates) were negatively correlated with crime rates, while subjective measures (such as confidence in the judiciary and the perceived quality of governance) were only weakly correlated with crime rates.

Governance can therefore have an impact on violence, particularly as it affects young people. Noronha et al. (*122*), in their study on violence affecting various ethnic groups in Salvador, Bahia, Brazil, concluded that dissatisfaction with the police, the justice system and prisons increased the use of unofficial modes of justice. In Rio de Janeiro, Brazil, de Souza Minayo (*105*) found that the police were among the principal perpetrators of violence against young people. Police actions – particularly against young men from lower socioeconomic classes – involved physical violence, sexual abuse, rape and bribery. Sanjuán (*123*) suggested that a sense that justice depended on socioeconomic class was an important factor in the emergence of a culture of violence among marginalized youths in Caracas, Venezuela. Similarly, Aitchinson (*124*) concluded that in post-apartheid South Africa, impunity for former perpetrators of human rights abuses and the inability of the police to change their methods significantly, have contributed to a generalized feeling of insecurity and increased the number of extra-judicial actions involving violence.

Social protection by the state, another aspect of governance, is also important. In their study, Pampel & Gartner (*125*) used an indicator measuring the level of development of national institutions responsible for collective social protection. They were interested in the question of why different countries, whose 15–29-year-old age groups had grown at the same rate over a given period, nevertheless showed differing increases in their homicide rates. Pampel & Gartner concluded that strong national institutions for social protection had a negative effect on the homicide rate. Furthermore, having such institutions in place could counter the effects on homicide rates associated with increases in the 15–29-year-old age group, the group with traditionally high rates of being a victim or perpetrator of homicide.

Messner & Rosenfeld (*126*) examined the impact of efforts to protect vulnerable populations from market forces, including economic recession. Higher welfare expenditures were found to be associated with decreases in the homicide rate,

suggesting that societies with economic safety nets have fewer homicides. Briggs & Cutright (*7*), in a study of 21 countries over the period 1965–1988, found that spending on social insurance, as a proportion of the GDP, was negatively correlated with homicides of children up to 14 years of age.

Cultural influences

Culture, which is reflected in the inherited norms and values of society, helps determine how people respond to a changing environment. Cultural factors can affect the amount of violence in a society – for instance, by endorsing violence as a normal method to resolve conflicts and by teaching young people to adopt norms and values that support violent behaviour.

One important means through which violent images, norms and values are propagated is the media. Exposure of children and young people to the various forms of the media has increased dramatically in recent years. New forms of media – such as video games, video tapes and the Internet – have multiplied opportunities for young people to be exposed to violence. Several studies have shown that the introduction of television into countries was associated with increases in the level of violence (*127–131*), although these studies did not usually take into account other factors that may at the same time have influenced rates of violence (*3*). The preponderance of evidence to date indicates that exposure to violence on television increases the likelihood of immediate aggressive behaviour and has an unknown effect in the longer term on serious violence (*3*) (see Box 2.2). There is insufficient evidence on the impact of some of the newer forms of media.

Cultures which fail to provide non-violent alternatives to resolve conflicts appear to have higher rates of youth violence. In their study of gangs in Medellín, Colombia, Bedoya Marín & Jaramillo Martínez (*136*) describe how low-income youths are influenced by the culture of violence, in society in general and in their particular community. They suggest that a culture of violence is fostered at the community level through the growing acceptance of ''easy money'' (much of it related to drug trafficking) and of whatever means are necessary to obtain

it, as well as through corruption in the police, judiciary, military and local administration.

Cultural influences across national boundaries have also been linked to rises in juvenile violence. In a survey of youth gangs in Latin America and the Caribbean, Rodgers (*106*) has shown that violent gangs, modelling themselves on those in Los Angeles, CA, United States, have emerged in northern and south-western Mexican towns, where immigration from the United States is highest. A similar process has been found in El Salvador, which has experienced a high rate of deportations of Salvadoran nationals from the United States since 1992, many of the deportees having been members of gangs in the United States.

What can be done to prevent youth violence?

In designing national programmes to prevent youth violence, it is important to address not only individual cognitive, social and behavioural factors, but also the social systems that shape these factors.

Tables 2.3 and 2.4 illustrate examples of youth violence prevention strategies as matrices, relating ecological systems through which violence can be prevented to developmental stages, from infancy to early adulthood, where violent behaviour or the risks for violent behaviour are likely to emerge. The prevention strategies in these tables are not exhaustive, nor do they necessarily represent strategies that have proved effective. Some, in fact, have been shown to be ineffective. Rather, the matrices are meant to illustrate the wide spectrum of possible solutions to the problem of youth violence, and to emphasize the need for a range of different strategies for various stages of development.

Individual approaches

The most common interventions against youth violence seek to increase the level of protective factors associated with individual skills, attitudes and beliefs.

One violence prevention strategy appropriate for early childhood – though it is not usually thought of as such – is the adoption of preschool enrichment programmes. These programmes introduce young

BOX 2.2

The impact of media on youth violence

Children and young people are important consumers of the mass media, including entertainment and advertising. Studies in the United States have found that television viewing often begins as early as 2 years of age, and that the average young person between 8 and 18 years of age watches some 10 000 violent acts a year on television. These patterns of exposure to the media are not necessarily evident in other parts of the world, especially where there is less access to television and film. All the same, there is little doubt that the exposure everywhere of children and young people to mass media is substantial and growing. It is therefore important to explore media exposure as a possible risk factor for interpersonal violence involving young people.

Researchers have been examining the impact of the media on aggressive and violent behaviour for over 40 years. Several meta-analyses of studies on the impact of the media on aggression and violence have tended to conclude that media violence is positively related to aggression toward others. However, evidence to confirm its effect on serious forms of violence (such as assault and homicide), is lacking.

A 1991 meta-analysis, involving 28 studies of children and adolescents exposed to media violence and observed in free social interaction, concluded that exposure to media violence increased aggressive behaviour towards friends, classmates and strangers (*132*). Another meta-analysis, conducted in 1994, examined 217 studies published between 1957 and 1990 concerned with the impact of media violence on aggressive behaviour, with 85% of the sample in the age range 6–21 years. The authors concluded that there was a significant positive correlation between exposure to media violence and aggressive behaviour, regardless of age (*133*).

Many of the studies included in these analytical reviews were either randomized experiments (laboratory and field) or cross-sectional surveys. Findings from the experimental studies show that brief exposure to violence on television or film, particularly dramatic presentations of violence, produces short-term increases in aggressive behaviour. Moreover, the effects seem to be greater for children and youths with aggressive tendencies and among those who have been aroused or provoked. The findings, however, may not extend to real-life situations. Indeed, real-life settings often include influences that cannot be ''controlled'' as in experiments – influences that might mitigate against aggressive and violent behaviour.

Findings from the cross-sectional studies also show a positive correlation between media violence and various measures of aggression – for instance, attitudes and beliefs, behaviour and emotions such as anger. The effects of media violence on the more serious forms of violent behaviour (such as assault and homicide), though, are rather small at best ($r = 0.06$) (*133*). Also, unlike experimental and longitudinal studies where causality can more easily be established, it is not possible to conclude from cross-sectional studies that exposure to media violence causes aggressive and violent behaviour.

There have also been longitudinal studies examining the link between television viewing and interpersonal aggression some years later. A 3-year longitudinal study of children aged 7–9 years in Australia, Finland, Israel, Poland and the United States produced inconsistent results (*134*), and a 1992 study of children in the Netherlands in the same age bracket failed to show any effect on aggressive behaviour (*135*). Other studies following up children in the United States over longer periods (10–15 years), however, have shown a positive correlation between television viewing in childhood and later aggression in young adulthood (*3*).

Studies examining the relationship between homicide rates and the introduction of television (primarily by looking at homicide rates in countries before and after television was introduced) have also found a positive correlation between the two (*127–131*). These studies, however, failed

> **BOX 2.2 (continued)**
>
> to control for confounding variables such as economic differences, social and political change, and a variety of other potential influences on homicide rates.
>
> The scientific findings on the relationship between media violence and youth violence are thus conclusive with respect to short-term increases in aggression. The findings, however, are inconclusive with respect to longer-term effects and on the more serious forms of violent behaviour, and suggest that more research is needed. Apart from examining the extent to which media violence is a direct cause of serious physical violence, research is also required on the influence of the media on interpersonal relations and on individual traits such as hostility, callousness, indifference, lack of respect and the inability to identify with other people's feelings.

children early on to the skills necessary for success in school and they therefore increase the likelihood of future academic success. Such programmes can strengthen a child's bonds to the school and raise achievement and self-esteem (*137*). Long-term follow-up studies of prototypes of such programmes have found positive benefits for children, including less involvement in violent and other delinquent behaviours (*138–140*).

Social development programmes to reduce antisocial and aggressive behaviour in children and violence among adolescents adopt a variety of strategies. These commonly include improving competency and social skills with peers and generally promoting behaviour that is positive, friendly and cooperative (*141*). Such programmes can be provided universally or just to high-risk groups and are most frequently carried out in school settings (*142, 143*). Typically, they focus on one or more of the following (*143*):

— managing anger;
— modifying behaviour;
— adopting a social perspective;
— moral development;
— building social skills;
— solving social problems;
— resolving conflicts.

There is evidence that these social development programmes can be effective in reducing youth violence and improving social skills (*144–146*). Programmes that emphasize social and competency skills appear to be among the most effective among youth violence prevention strategies (*3*). They also

appear to be more effective when delivered to children in preschool and primary school environments rather than to secondary school students.

An example of a social development programme that uses behavioural techniques in the classroom is a programme to prevent bullying introduced in elementary and junior secondary schools in Bergen, Norway. Incidents of bullying were reduced by a half within 2 years using this intervention (*147*). The programme has been reproduced in England, Germany and the United States with similar effects (*3*).

Other interventions targeting individuals that may be effective include the following, though further evidence is needed to confirm their effect on violent and aggressive behaviour (*137, 148*):

— programmes to prevent unintended pregnancies, so as to reduce child maltreatment and the risk it poses for later involvement in violent behaviour;
— for similar reasons, programmes to increase access to prenatal and postnatal care;
— academic enrichment programmes;
— incentives for youths at high risk for violence to complete secondary schooling and to pursue courses of higher education;
— vocational training for underprivileged youths and young adults.

Programmes that do not appear effective in reducing youth violence include (*3*):

— individual counselling;
— training in the safe use of guns;

TABLE 2.3
Violence prevention strategies by developmental stage (infancy to middle childhood) and ecological context

Ecological context	Developmental stage		
	Infancy (ages 0–3 years)	Early childhood (ages 3–5 years)	Middle childhood (ages 6–11 years)
Individual	• Preventing unintended pregnancies • Increasing access to prenatal and postnatal care	• Social development programmes[a] • Preschool enrichment programmes[a]	• Social development programmes[a] • Programmes providing information about drug abuse[b]
Relationship (e.g. family, peers)	• Home visitation[a] • Training in parenting[a]	• Training in parenting[a]	• Mentoring programmes • Home–school partnership programmes to promote parental involvement
Community	• Monitoring lead levels and removing toxins from homes • Increasing the availability and quality of child-care facilities	• Monitoring lead levels and removing toxins from homes • Increasing the availability and quality of preschool enrichment programmes	• Creating safe routes for children on their way to and from school or other community activities • Improving school settings, including teacher practices, school policies and security • Providing after-school programmes to extend adult supervision • Extracurricular activities
Societal	• Deconcentrating poverty • Reducing income inequality	• Deconcentrating poverty • Reducing income inequality • Reducing media violence • Public information campaigns	• Deconcentrating poverty • Reducing income inequality • Reducing media violence • Public information campaigns • Reforming educational systems

[a] Demonstrated to be effective in reducing youth violence or risk factors for youth violence.
[b] Shown to be ineffective in reducing youth violence or risk factors for youth violence.

— probation and parole programmes that include meetings with prison inmates who describe the brutality of prison life;
— trying young offenders in adult courts;
— residential programmes taking place in psychiatric institutions or correctional institutions;
— programmes providing information about drug abuse.

Programmes for delinquent young people modelled on basic military training (''boot camps'') have, in some studies, been found to lead to an increase in repeat offending (*3*).

Relationship approaches

Another common set of prevention strategies address youth violence by attempting to influence the type of relations that young people have with others with whom they regularly interact. These programmes address such problems as the lack of emotional relations between parents and children, powerful pressures brought to bear by peers to engage in violence and the absence of a strong relationship with a caring adult.

Home visitation

One type of family-based approach to preventing youth violence is home visitation. This is an intervention conducted in infancy (ages 0–3 years) involving regular visits by a nurse or other health care professional to the child's home. This type of programme is found in many parts of the world, including Australia, Canada, China (Hong Kong Special Administrative Region (SAR)), Denmark, Estonia, Israel, South Africa, Thailand and the United States. The objective is to provide training, support, counselling, monitoring and referrals to outside agencies for low-income mothers, for families who are expecting or have recently had their first child, and for families at increased risk of abusing their children or with other health problems (*137, 146*). Home visitation pro-

grammes have been found to have significant long-term effects in reducing violence and delinquency (*138, 149–152*). The earlier such programmes are delivered in the child's life and the longer their duration, the greater appear to be the benefits (*3*).

Training in parenting

Skill training programmes on parenting aim to improve family relations and child-rearing techniques and thereby to reduce youth violence. Their objectives include improving the emotional bonds between parents and their children, encouraging parents to use consistent child-rearing methods and helping them to develop self-control in bringing up children (*146*).

An example of a comprehensive training programme for parents is the Triple-P-Positive Parenting Programme in Australia (*153*). This programme includes a population-based media campaign to reach all parents and a health care component that uses consultations with primary care physicians to improve parenting practices. Intensive interventions are also offered to parents and families with children at risk for severe behavioural problems. The programme – or elements of it – have been or are being implemented in China (Hong Kong SAR), Germany, New Zealand, Singapore and the United Kingdom (*154*).

Several evaluation studies have found training in parenting to be successful and there is some evidence of a long-term effect in reducing antisocial behaviour (*155–158*). In a study on the cost-effectiveness of early interventions to prevent serious forms of crime in California, United States, training for parents whose children exhibited aggressive behaviour was estimated to have prevented 157 serious crimes (such as homicide, rape, arson and robbery) for every million US dollars spent (*159*). In fact, training in parenting was estimated to be about three times as cost-effective as the so-called ''three-strikes'' law in California – a law decreeing harsh sentences for those repeatedly offending.

Mentoring programmes

A warm and supportive relationship with a positive adult role model is thought to be a protective factor for youth violence (*3, 146*). Mentoring programmes based on this theory match a young person – particularly one at high risk for antisocial behaviour or growing up in a single-parent family – with a caring adult, a mentor, from outside the family (*160*). Mentors may be older classmates, teachers, counsellors, police officers or other members of the community. The objectives of such programmes are to help young people to develop skills and to provide a sustained relationship with someone who is their role model and guide (*143*). While not as widely evaluated as some of the other strategies to reduce youth violence, there is evidence that a positive mentoring relationship can significantly improve school attendance and performance, decrease the likelihood of drug use, improve relationships with parents and reduce self-reported forms of antisocial behaviour (*161*).

Therapeutic and other approaches

Therapeutic approaches have also been used with families to prevent youth violence. There are many forms of such therapy, but their common objectives are to improve communications and interactions between parents and children and to solve problems that arise (*143*). Some programmes also try to help families deal with environmental factors contributing to antisocial behaviour and make better use of resources in the community. Family therapy programmes are often costly, but there is substantial evidence that they can be effective in improving family functioning and reducing behavioural problems in children (*162–164*). Functional Family Therapy (*165*) and Multisystemic Therapy (*166*) are two particular approaches used in the United States that have been shown to have positive, long-term effects in reducing violent and delinquent behaviour of juvenile offenders at lower costs than other treatment programmes (*3*).

Other interventions targeting youth relationships that may be effective include (*3*):

— home–school partnership programmes to promote parental involvement;
— compensatory education, such as adult tutoring.

TABLE 2.4

Violence prevention strategies by developmental stage (adolescence and early adulthood) and ecological context

Ecological context	Developmental stage	
	Adolescence (ages 12–19 years)	Early adulthood (ages 20–29 years)
Individual	• Social development programmes[a] • Providing incentives for youths at high risk for violence to complete secondary schooling[a] • Individual counselling[b] • Probation or parole programmes that include meetings with prison inmates describing the brutality of prison life[b] • Residential programmes in psychiatric or correctional institutions[b] • Programmes providing information about drug abuse[b] • Academic enrichment programmes • Training in the safe use of guns[b] • Programmes modelled on basic military training[b] • Trying young offenders in adult courts[b]	• Providing incentives to pursue courses in higher education • Vocational training
Relationship (e.g. family, peers)	• Mentoring programmes[a] • Peer mediation or peer counselling[b] • Temporary foster care programmes for serious and chronic delinquents • Family therapy[a]	• Programmes to strengthen ties to family and jobs, and reduce involvement in violent behaviour
Community	• Creating safe routes for youths on their way to and from school or other community activities • Improving school settings, including teacher practices, school policies and security • Extracurricular activities • Gang prevention programmes[b] • Training health care workers to identify and refer youths at high risk for violence • Community policing • Reducing the availability of alcohol • Improving emergency response, trauma care and access to health services • Buying back guns[b]	• Establishing adult recreational programmes • Community policing • Reducing the availability of alcohol • Improving emergency response, trauma care and access to health services • Buying back guns[b]
Societal	• Deconcentrating poverty • Reducing income inequality • Public information campaigns • Reducing media violence • Enforcing laws prohibiting illegal transfers of guns to youths • Promoting safe and secure storage of firearms • Strengthening and improving police and judicial systems • Reforming educational systems	• Deconcentrating poverty • Reducing income inequality • Establishing job creation programmes for the chronically unemployed • Public information campaigns • Promoting safe and secure storage of firearms • Strengthening and improving police and judicial systems

[a] Demonstrated to be effective in reducing youth violence or risk factors for youth violence.
[b] Shown to be ineffective in reducing youth violence or risk factors for youth violence.

Programmes addressing youth relationships that do not appear to be effective in reducing adolescent violence include (*137*):

• Peer mediation – the involvement of students to help other students resolve disputes.
• Peer counselling.
• Redirecting youth behaviour and shifting peer group norms – both of these attempt to redirect youths at high risk of violence towards conventional activities, but have been shown to have negative effects on attitudes, achievement and behaviour (*3*).

Community-based efforts

Interventions addressing community factors are those that attempt to modify the environments in which young people interact with each other. A simple example is improving street lighting, where poorly-lit areas may increase the risk of violent assaults occurring. Less is known, unfortunately,

about the effectiveness of community-based strategies with regard to youth violence than of those focusing on individual factors or on the relationships that young people have with others.

Community policing

Community or problem-oriented policing has become an important law enforcement strategy for addressing youth violence and other criminal problems in many parts of the world (*167*). It can take many forms, but its core ingredients are building community partnerships and solving community problems (*168*). In some programmes, for instance, police collaborate with mental health professionals to identify and refer youths who have witnessed, experienced or committed violence (*169*). This type of programme builds on the fact that police come into daily contact with young victims or perpetrators of violence. It then provides them with special training and links them – at an early stage in the youth's development – with the appropriate mental health professionals (*168*). The effectiveness of this type of programme has not yet been determined, though it appears to be a useful approach.

Community policing programmes have been implemented with some success in Rio de Janeiro, Brazil, and San José, Costa Rica (*170, 171*). In Costa Rica, an evaluation of the programme found an association with a decline in both crime and perceived personal insecurity (*171*). Such programmes need to be more rigorously evaluated, but they do offer local residents better protection and make up for a lack of regular police services (*170*).

Availability of alcohol

Another community strategy to address crime and violence is to reduce the availability of alcohol. As already mentioned, alcohol is an important situational factor that can precipitate violence. The effect of reducing alcohol availability on rates of offending was examined in a 4-year longitudinal study conducted in a small provincial region of New Zealand (*172*). The rates of serious criminal offences (homicide and rape) and other offences (related to property and traffic) were compared in two experimental towns and four control towns over the study period. While both types of offence decreased in the experimental towns and increased relative to national trends in the control towns, crime rates fell significantly for 2 years in areas of reduced alcohol availability. It is not clear, though, to what extent the intervention affected violent behaviour among young people or how well such an approach might work in other settings.

Extracurricular activities

Extracurricular activities – such as sports and recreation, art, music, drama and producing newsletters – can provide adolescents with opportunities to participate in and gain recognition for constructive group activities (*3*). In many communities, though, either such activities are lacking or there are no places where children can safely go outside school hours to practise them (*173*). After-school programmes provide these facilities for children and young people. Ideally, such programmes should be (*174*):

— comprehensive – addressing the whole range of risk factors for youth violence and delinquency;
— developmentally appropriate;
— of long duration.

Essor, in Maputo, Mozambique (*175*), is an example of a community programme designed to address adolescent delinquency in two low-income neighbourhoods. The programme, which targets adolescents between the ages of 13 and 18 years, offers sports and leisure activities to promote self-expression and team-building. Programme staff also maintain contact with youths through regular home visits. An evaluation of the programme showed significant improvements in constructive behaviour and communications with parents over an 18-month period, along with a significant drop in antisocial behaviour.

Suppressing gang violence

Community programmes to prevent gang violence have taken on several forms. Preventive strategies have included attempts to suppress gangs or to

organize communities affected by gang violence in such a way that youth gangs operate differently and with less criminal activities (*106*). Rehabilitative or corrective strategies include outreach and counselling programmes for gang members as well as programmes that seek to channel gang activities into socially productive directions (*106*). There is little evidence that programmes to suppress gangs, organize communities, or provide outreach or counselling services are effective. In Nicaragua, wide-ranging police efforts in 1997 to suppress gang activity met with only temporary success and may have in the end exacerbated the problem (*176*). Attempts at community organization in the United States, in Boston, MA, and Chicago, IL, have not been successful in reducing gang violence either, possibly because the affected communities were insufficiently integrated or cohesive to sustain organized efforts (*177*). Outreach and counselling efforts have had the unwanted, and unexpected, consequence of increasing gang cohesion (*178*). In Medellín, Colombia, programmes have been successfully used to encourage gang members to involve themselves in local politics and social development projects (*179*), while in Nicaragua and the United States such "opportunity" programmes have met with only limited success (*106*).

Other strategies

Other interventions targeting communities that may prove effective include (*148, 180*):

- Monitoring lead levels and removing toxins from the home environment so as to reduce the risk of brain damage in children, something that may lead indirectly to youth violence.

- Increasing the availability and quality of child-care facilities and preschool enrichment programmes to promote healthy development and facilitate success in school.

- Attempts to improve school settings – including changing teaching practices and school policies and rules, and increasing security (for instance, by installing metal detectors or surveillance cameras).

- Creating safe routes for children on their way to and from school or other community activities.

Health care systems can contribute considerably both to responding to and preventing youth violence, by:

— improving the response and performance of emergency services;

— improving access to health services;

— training health care workers to identify and refer young people at high risk.

One type of programme that appears to be ineffective in reducing adolescent violence is where money is offered as a reward for handing in firearms to the police or other community agencies – in what is known as a "gun buy-back programme". There is some evidence that the types of guns handed in are not the types usually used in youth homicides (*3*).

Societal approaches

Changing the social and cultural environment to reduce violence is the strategy that is least frequently employed to prevent youth violence. Such an approach seeks to reduce economic or social barriers to development – for instance, by creating job programmes or strengthening the criminal justice system – or to modify the embedded cultural norms and values that stimulate violence.

Addressing poverty

Policies to reduce the concentration of poverty in urban areas may be effective in combating youth violence. This was shown in a housing and mobility experiment, "Moving to Opportunity", conducted in Maryland, United States (*181*). In a study of the impact of this programme, families from high-poverty neighbourhoods in the city of Baltimore were divided into three groups:

— families that had received subsidies, counselling and other assistance specifically to move to communities with lower levels of poverty;

— families that had received subsidies only, but with no restrictions on where they could move;

— families that had received no special assistance.

The study found that providing families with the opportunity to move to neighbourhoods with lower poverty levels substantially reduced violent behaviour by adolescents (*181*). A better understanding of the mechanisms through which neighbourhoods and peer groups influence youth violence is needed, though, in order fully to understand the implications of these results.

Tackling gun violence among youths

Changing the social environment so as to keep guns and other lethal weapons out of the hands of children and unsupervised young people may be a viable strategy for reducing the number of deaths arising from youth violence. Young people and others who should not possess guns will inevitably get hold of them. Some of these people will do so intending to commit crimes, while others – whose judgements are impaired by alcohol or drugs – will lack the proper care and responsibility that should accompany the possession of firearms.

In many countries, the means by which young people can obtain guns are already illegal. Here, a stricter enforcement of existing laws regulating illegal transfers of guns may have a high return in reducing firearm-related violence among adolescents (*182*). Very little is known, though, about the effectiveness of such an approach.

Another approach to the problem of young people possessing lethal weapons is to legislate for and enforce the safe and secure storage of firearms. This may have the effect of limiting inappropriate access directly, by making it more difficult for young people to take guns out of their homes, and indirectly, by reducing the ability of people to steal guns. Theft is a major source of guns for illegal markets, and theft and burglary are the ultimate (though not always the most recent) source through which juveniles obtain guns (*182, 183*). A longer-term strategy for reducing unauthorized access to guns on the part of children and adolescents would be to develop ''smart'' guns that do not function if anyone other than their rightful owner tries to use them (*184*). Such guns

might operate by being able to recognize the owner's palm print or by needing to be in close proximity to a holster or special ring in order to function.

Some other interventions designed to control the misuse of guns have been evaluated. In 1977, a restrictive licensing law prohibiting handgun ownership by everyone except police officers, security guards and existing gun owners was introduced in Washington, DC, United States. Subsequently, the incidence of firearm-related homicides and suicides declined by 25% (*185*). The impact of this law on reducing gun-related violence specifically among young people is, however, unknown. In Cali and Bogotá, Colombia, during the 1990s, the carrying of guns was banned during periods that were known from past experience to have higher homicide rates (*186*). These included weekends after pay-days, weekends linked to holidays and election days. An evaluation found that the incidence of homicide was lower during periods when the ban on carrying firearms was in effect (*186*). The authors of the study suggested that intermittent city-wide bans on carrying of guns could be useful in preventing homicide, particularly in regions of the world with very high rates of homicide.

Other approaches

Other strategies addressing socioeconomic and cultural factors that might be effective for youth violence prevention, but that have not been adequately evaluated, include (*148, 170*):

— public information campaigns to change social norms and promote pro-social behaviour;
— efforts to reduce media violence;
— programmes to reduce income inequality;
— activities and policies to mitigate the effects of rapid social change;
— efforts to strengthen and improve police and judicial systems;
— institutional reforms of educational systems.

As is evident from the review of risk factors and prevention strategies, youth violence is caused by a complex interaction among multiple factors, and efforts to reduce this problem in a substantial way will

need to be multifaceted. As the preceding discussions have shown, there are a number of factors – some residing in the individual, others in the family and social environment – that increase the probability of aggression and violence during childhood, adolescence and early adulthood. Ideally, programmes should approach youths through multiple systems of influence (individual, family, community and society) and provide a continuum of interventions and activities spanning the stages of development. Such programmes can address co-occurring risk factors, such as low educational attainment, teenage pregnancy, unsafe sex and drug use, and thereby address the needs of youths in many spheres of their lives.

Recommendations

Deaths and injuries from youth violence constitute a major public health problem in many parts of the world. Significant variations in the magnitude of this problem exist within and between countries and regions of the world. There are a broad range of viable strategies for preventing youth violence, some of which have been shown to be particularly effective. However, no single strategy is on its own likely to be sufficient to reduce the health burden of youth violence. Instead, multiple concurrent approaches will be required and they will need to be relevant to the particular place where they are implemented. What is successful in preventing youth violence in Denmark, for instance, will not necessarily be effective in Colombia or South Africa.

Over the past two decades, a great amount has been learnt about the nature and causes of youth violence and how to prevent it. This knowledge, although based mainly on research from developed countries, provides a foundation from which to develop successful programmes to prevent youth violence. There is, however, much more to be learned about prevention. Based on the present state of knowledge, the following recommendations, if implemented, should lead to greater understanding and more effective prevention of youth violence.

Establishing data collection systems

Developing data systems for routine monitoring of trends in violent behaviour, in injuries and in deaths should form the basis of prevention efforts. Such data will provide valuable information for formulating public policies and programmes to prevent youth violence and for evaluating them. Simple approaches to the surveillance of youth violence are needed that can be applied in a wide range of cultural settings. In this regard, the following points should be given priority.

- Uniform standards for defining and measuring youth violence should be developed and incorporated into injury and violence surveillance systems. These standards should include age categories that accurately reflect the different risks among young people of being victims or perpetrators of youth violence.
- Priority should be given to developing systems to monitor deaths from violence in regions where homicide data are currently inadequate or lacking. These regions include Africa, South-East Asia and the Eastern Mediterranean, and parts of both the Americas and the Western Pacific, especially the poorer parts of these two regions.
- In parallel with surveillance, there should be special studies to establish the ratio of fatal to non-fatal cases of violence-related injuries, classified by the method of attack, age and sex of the victim. Such data can then be used to estimate the magnitude of the youth violence problem where only one type of data – such as mortality or morbidity – is available.
- All countries and regions should be encouraged to establish centres where routine information available from the health services (including emergency departments), the police and other authorities, relevant to violence, can be collated and compared. This will greatly help in formulating and implementing prevention programmes.

More scientific research

Scientific evidence on the patterns and causes of youth violence, both qualitative and quantitative, is essential for developing rational and effective responses to the problem. While an understanding of the phenomenon of violence has greatly

progressed, significant gaps remain which research in the following areas could help to fill:

— cross-culturally, on the causes, development and prevention of youth violence, in order to explain the large variations worldwide in levels of youth violence;

— on the validity and relative advantages of using official records, hospital records and self-reports to measure youth violence;

— comparing youths who commit violent offences with both youths who commit non-violent offences and those who are not involved in violent or delinquent behaviour;

— to determine which risk factors have differential effects on the persistence, escalation, de-escalation and terminating of violent offending at various ages;

— to identify factors that protect against youth violence;

— on female involvement in youth violence;

— cross-culturally, on the societal and cultural influences on youth violence;

— in longitudinal studies measuring a broad range of risk and protective factors, so as to further the knowledge of developmental pathways to youth violence;

— to provide a better understanding of how social and macroeconomic factors might effectively be modified to reduce youth violence.

In addition to the research needs listed above:

• Estimates are needed of the total cost to society of youth violence, so as better to assess the cost-effectiveness of prevention and treatment programmes.

• Institutions should be established to organize, coordinate and fund global research on youth violence.

Developing prevention strategies

Up to now, most of the resources committed to prevention have been in untested programmes. Many of these programmes have been based on questionable assumptions and delivered with little consistency or quality control. The ability effectively to prevent and control youth violence

requires, above all, systematic evaluation of interventions. In particular, the following aspects relating to youth violence prevention programmes need much more research:

— longitudinal studies evaluating the long-term impact of interventions conducted in infancy or childhood;

— evaluations of the impact of interventions on the social factors associated with youth violence, such as income inequality and the concentration of poverty;

— studies on the cost-effectiveness of prevention programmes and policies.

Consistent standards are needed for evaluation studies assessing the effectiveness of youth violence programmes and policies. These standards should include:

— the application of an experimental design;

— evidence of a statistically significant reduction in the incidence of violent behaviour or in violence-related injuries;

— replication across different sites and different cultural contexts;

— evidence that the impact is sustained over time.

Disseminating knowledge

Greater efforts need to be made to apply what has been learnt about the causes and prevention of youth violence. Currently, knowledge on this subject is disseminated to practitioners and policy-makers worldwide with great difficulty, mainly because of a poor infrastructure of communication. The following areas in particular should receive greater attention:

• Global coordination is needed to develop networks of organizations that focus on information sharing, training and technical assistance.

• Resources should be allocated to the application of Internet technology. In parts of the world where this presents problems, other non-electronic forms of information-sharing should be promoted.

• International clearing houses should be set up to identify and translate relevant information

from all parts of the world, in particular from lesser-known sources.

- Research is needed on how best to implement youth violence prevention strategies and policies. Simply knowing which strategies have proved effective is not enough to ensure they will be successful when implemented.
- Youth violence prevention programmes should be integrated, wherever possible, with programmes to prevent child abuse and other forms of violence within the family.

Conclusion

The volume of information about the causes and prevention of youth violence is growing rapidly, as is the demand worldwide for this information. Meeting the huge demand will require substantial investment – to improve the mechanisms for conducting public health surveillance, to carry out all the necessary scientific research, and to create the global infrastructure for disseminating and applying what has been learnt. If the world can meet the challenge and provide the resources required, youth violence can, in the foreseeable future, begin to be regarded as a preventable public health problem.

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