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Preventing crime and violence

Preschool education, early family support, and situational prevention can be effective

Violent crime, which is committed mainly by adolescents and young adults, is a serious and increasing problem on both sides of the Atlantic. In the United States the number of juveniles (under 18) who were arrested for murder and manslaughter rose by 60% between 1981 and 1990 compared with a 5% rise in those aged 18 years and over.[1] The proportion of all murders by those under 18 rose in the same interval from 9·4% to 13·6%, and arrests of juveniles over the period rose by 28% for rape, 57% for aggravated assault, and 54% for motor vehicle theft. In Britain reported crime has steadily increased; in 1991 its peak incidence was at 18 for males and 15 for females.[2] The number of victims of violence attending one British accident and emergency department trebled over 1974-91.[3]

Juvenile crime is recognised as one of the most important problems facing both Britain and the United States, not least because of its costs to victims, offenders, and society. For example, incarceration of a juvenile in the United States cost an average of $29 000 a year in 1991. Escalating juvenile crime, particularly involving firearms in the United States and permanently disfiguring maxillofacial injury in Britain, has been the spur for the adoption of violence as a public health issue.[4,5]

Young offenders tend not to specialise in particular offences[6]; violent offenders commit offences of many types, and nearly all chronic offenders have committed a violent offence. Furthermore, offenders often tend to be victims.[7]

At age 8 the best predictors of subsequent offending are hyperactivity, impulsivity, and attention deficit[8]; marital discord between the child's parents; harsh or erratic parenting; and socioeconomic deprivation.[6] Separation from a parent for reasons other than death or illness is also important.[6] Evidence from studies on vulnerability and resilience shows the importance of the cumulative effect of risk factors in the development of delinquency.[9] Risk factors potentiate each other: children with two risk factors are four times as likely to become offenders as those with one or none, and with more risk factors the prevalence is greater still.[9]

The best way to prevent crime and violence seems to be by family support, training of parents, preschool education, and modifying opportunities for crime (situational prevention).[10,11] Interventions that have been shown by randomised experiments to produce long term benefits have targeted single parent, low income, and poorly educated families with preschool children.[10]

Four studies that achieved long term falls in delinquency all addressed multiple risk factors. The Perry preschool project targeted African-American families on low incomes with children aged 3-5,[12] whereas the Houston parent-child project targeted Mexican-American families on low incomes with children aged 1-3.[13] The Syracuse family project offered services to mothers on low incomes with less than high school education while their children were under 5,[14] and the New York State project targeted pregnant women.[15] All projects entailed intervention by either preschool teachers or home visitors (usually nurses). The home visitors gave mothers advice about nutrition and care of the child, infant development, parenting skills, and avoiding substance abuse. Prevention programmes for school age children have also shown benefits, at least in the short term, though the most successful have been those that combined training parents and training children in social skills in primary grades.

Situational prevention of crime has been developed partly because of the difficulty in identifying and dealing with underlying root causes of crime and violence but also because the circumstances of particular crimes lend themselves to modifications.[11] In general, situational prevention is designed to reduce opportunities for crime by increasing risks and reducing rewards.[11] This approach works better with opportunistic rather than with more committed offenders. One of the difficulties with this approach has been that if criminal activity is prevented in one set of circumstances it may be displaced elsewhere. For example, street crimes increased in surrounding districts during an effective campaign against street crime in one precinct in New York City. Similarly, a fall in thefts of newer vehicles fitted with steering locks was accompanied by a rise in thefts of older vehicles not fitted with such locks. However, displacement is by no means inevitable,[16] and situational initiatives can even result in "diffusion of benefits" to other types of offending.

Reviewing the situation

Situational prevention has focused on the targets of crime, such as alcohol misusers, lone women, and motor vehicles, and on facilitators of crime, such as firearms, alcohol, and cars (in the case of "ram raiding").[11] In relation to violence, the fitting of transparent screens to shield bus drivers significantly reduced assaults, and "target hardening" of Australian banks by the installation of bullet proof screens has reduced armed robbery. Sophisticated crowd control reduces the incidence of violence in football grounds and around bars.

Improved surveillance where violence is likely to occur may result in substantial falls in the number of cases of assault. For

example, rates of assault on public transport in three Dutch cities were reduced when 1200 unemployed young people were hired as inspectors.[17] Similarly, the installation of closed circuit television on the London underground has reduced muggings and theft. Neighbourhood watch schemes have, however, resulted in few measurable falls in crime.

Interestingly, it is in situational crime prevention that the adoption of violence as a public health issue is having greatest effect. In the United States case-control studies have shown an increased risk of homicide and suicide in homes where firearms are available. The availability of handguns was responsible for a sevenfold difference in the rate of homicide between Seattle, in the United States, and Vancouver, in Canada, despite a similar incidence of assault in the two cities[18]—a finding that was influential in the success of the Brady bill on gun control in the United States. Public health approaches have also helped to define risk of injury due to assault in relation to alcohol consumption. In urban violence in Britain consumption of more than 10 units of alcohol in a six hour period has been linked to more severe injury, and consumption of 8 to 15 units has distinguished injured from uninjured men in the same environments.[19]

As the consequences of violence become more apparent in terms of increased morbidity and cost the need for doctors to join forces with social scientists to tackle this problem becomes ever more obvious. Evidence also exists that, independently of socioeconomic variables, injury in violent crime is linked to adolescents with a history of drug misuse, elective surgery, and trauma.[20] Preventing crime and violence should be a central issue in health care.

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Biological influences on criminal behaviour: how good is the evidence?

Available studies have their limitations

The perception that crime, especially violent crime, has become one of the most serious problems facing society has led to determined efforts by many researchers to find the causes of criminal behaviour. Researchers have focused on biological causes, believing that a biological basis of criminality exists and that an understanding of the biology will be useful in predicting which people are predisposed to become criminals. In the 1960s it was proposed that males with an extra Y chromosome were predisposed to violent criminal behaviour; later work found no support for this hypothesis.[1] Recently, two approaches, one genetic, the other biochemical, have received widespread publicity. I would argue that currently neither approach provides convincing evidence that criminal behaviour can be understood in terms of genetics or biochemistry.

Before these two approaches are discussed, the many family, twin, and adoption studies that have concluded that a biological basis exists for antisocial behaviour should be noted.[2-4] At least two recent reviews, however, have suggested that the support for these conclusions, especially those concerned with violent crime, is not strong. A meta-analysis of the literature found only a "low-moderate correlation" between heredity and crime.[5] Moreover, the "better designed and more recently published studies provided less support for the gene-crime hypothesis than more poorly designed and earlier published investigations."[5] And a review published last year concluded: "Together, the data do not suggest a strong role for heredity in violence."[6]

For about 25 years researchers have reported correlations between low cerebrospinal fluid concentration of 5-hydroxyindoleacetic acid, a metabolite of the neurotransmitter serotonin, and violent and criminal behaviour. Although more than 100 studies have been published on this topic, later studies cannot be regarded as confirming the results of earlier ones. The behaviour characteristically associated with low concentrations of the metabolite has shifted from depression to general aggressive behaviour to impulsive aggressive behaviour.[7] The later studies, which have used more refined definitions than earlier ones, therefore do not replicate the earlier ones.[8]

Even if an association was established between low 5-hydroxyindoleacetic acid concentration in cerebrospinal