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Centre for the **E**valuation of Health **P**romotion and Social **I**nterventions  
**EPI-Centre**<sup>1</sup>  
Social Science Research Unit  
London University Institute of Education  
18 Woburn Square  
London WC1H 0NS

Tel : 0171 612 6816  
Fax : 0171 612 6400  
e-mail: [health@ioe.ac.uk](mailto:health@ioe.ac.uk)

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## AIM

To explore the literature on health promotion for young people in order to describe the needs and views of young people with respect to their health and the range of interventions undertaken, and to make recommendations for future research.

## OBJECTIVES

1. To compile a database of bibliographic details of reports of health promotion studies in young people;
2. To classify the identified reports according to :
  - (a) topic area;
  - (b) research methods : descriptive research or outcome evaluations of interventions;
  - (c) date of the report : before 1990 or from 1990 onwards;
3. To describe the findings as claimed by the authors;
4. To make recommendations for future research.

## SCOPE

For the purposes of the Health of the Young Nation Programme, the age range defined as young people is broader than the WHO definition of adolescence (10-19 years olds); the category of 'young people' includes younger age groups and/or young adults in their early twenties depending on the subject matter and research focus of the studies included.

The term 'adolescents' is rarely used in this report because it is seen to imply that young people are only valued for their position in the developmental process towards adulthood, rather than in their own right. The only times the term does occur, are when the authors of the study have been quoted directly or when substituting 'young people' for 'adolescents' would have obscured the intentions of the study concerned.

This document explores the field of health promotion studies related to young people. It draws on studies identifiable and obtainable through easily accessible sources within the limited time frame for the work (on a part-time basis for 3 months). Its scope is therefore not comprehensive and is strongly biased towards published studies in journals indexed by the electronic database systems used. In addition, the findings presented are those **claimed by the authors of the studies**. As shown in previous work carried out by the Centre for the **E**valuation of Health **P**romotion and

Social Interventions (**EPI**-Centre) and the Social Science Research Unit (SSRU), a discrepancy may exist between the conclusions drawn by the authors and those drawn by reviewers who take into consideration the methodological quality of intervention evaluations (France-Dawson *et al.* 1994; Fullerton and Oakley 1994,1995; Oakley *et al.* 1994a,b; Oakley *et al.* 1995a,b,c,d; Peersman *et al.* 1996). Consequently, we do not necessarily endorse the conclusions arrived at by the authors. The chapters on accident prevention, sexual health and tobacco abuse are an exception on this restriction as they are based on recent *systematic* reviews which have identified a subgroup of sound studies from which reliable conclusions about effectiveness of interventions can be drawn (Towner *et al.* 1995 and Coleman *et al.*1996; Peersman *et al.* 1996; Fullerton and Oakley 1995, respectively).

## INTRODUCTION

Health promotion interventions are potentially an important strategy for improving health. A large amount of health promotion work has been done with young people, mainly focusing on efforts to change those behaviours that are linked to adverse health outcomes. The status and effectiveness of much of this work is unknown, although such questions are now beginning to be addressed systematically within the National Health Service (NHS) Research & Development Programme, the Cochrane Collaboration and the work of the NHS Centre for Reviews and Dissemination in York.

Over the past 3 years, the Social Science Research Unit has contributed to the move towards evidence-based health care through the development of methodological tools for reviewing the effectiveness of health promotion and social interventions. This work is now being extended through the establishment of the **EPI**-Centre, the Centre for the **E**valuation of Health **P**romotion and Social **I**nterventions, funded by the Department of Health and the North Thames Regional Health Authority, England. The **EPI**-Centre also coordinates (jointly with McMaster University, Canada) a registered Cochrane Field in Health Promotion with an initial focus on Young People. It is within this framework that this document has been prepared.

The Health of the Young Nation Programme, launched by the Department of Health in July 1995, is aimed at a threefold advantage with respect to young people's health (Fact Sheets 1995):

- (1) immediate benefits;
- (2) avoiding long-term harm;
- (3) long-term benefits to both young people and their children of establishing healthy lifestyles carried through to adult life.

Though these aims are very broad, the Health of the Young Nation Programme only includes targets with respect to accident-related mortality rates in both under 15 year olds and 15-24 year olds; the incidence of gonorrhoea in people over the age of 15; and the rate of

conceptions in women under 16 years old. Targets for the reduction of: suicide rates; the proportion of obese people; the average percentage of energy and fat intake; and the consumption of alcohol are not specifically related to young people, but to the general population. Targets for increasing physical activity and reducing drug abuse are not included.

## METHODS

### Identification of studies

Health promotion studies in the areas of mental health, nutrition, physical activity, sexual health, and substance abuse (alcohol, illicit drugs, tobacco), focusing on young people were identified through electronic searches on: EMBASE (on-line); Medline (CD-ROM); DARE (Database of Abstracts of Reviews of Effectiveness, the NHS Centre for Reviews and Dissemination, York; CD-ROM); and/or the in-house databases of the EPI-Centre (BiblioMap), the Health Education Authority (HealthPromis), and the National Adolescent & Student Health Unit, Oxford.

A unique search strategy was developed for each database -except for DARE which can be searched by report title only- in order to maximise the sensitivity of each search, using a combination of population-, subject- and prevention-related terminology (see **Appendix 1**).

Recent systematic reviews of outcome evaluations which took into account the methodological quality of studies were used for the areas of accidents (Towner *et al.* 1995; Coleman *et al.* 1996), sexual health (Peersman *et al.* 1996) and tobacco abuse (Fullerton and Oakley 1995). Descriptive studies related to accidents were identified from major literature reviews (Mauthner 1993; Popay *et al.* 1993). Descriptive studies in the areas of sexual health and tobacco abuse were identified from BiblioMap, the EPI-Centre bibliographic database (see **Appendix 1**).

### Classification of studies

The titles and abstracts yielded from the various searches were scanned systematically for their relevance to the scope of this mapping exercise and classified according to :

- (a) topic area:     *accidents*  
                          *mental health*  
                          *nutrition*  
                          *physical activity*  
                          *sexual health*  
                          *substance abuse alcohol*  
  *illicit drugs*  
  *tobacco*

- (b) research methods :

*descriptive studies*, including case-control studies, cohort studies, cross-sectional surveys, needs assessments, reviews, systematic reviews etc.;

*outcome evaluations*, ie evaluations designed to establish whether an intervention changed health-related outcomes (e.g. knowledge, attitudes, intentions, behaviour, service use).



(c) date of the report :   *before 1990*  
  *1990 and onwards*

### **Collection of full reports**

As many full reports as possible within the time frame were obtained to enable a more detailed description of the studies in terms of their aims and findings. Additional pertinent references included in the citations of these reports were also obtained.

### **Presentation of findings**

The findings as claimed by the authors of studies are presented by topic area. However, the discussion and the recommendations for future research draw on the links between and the common issues across all topic areas.

Only the chapters on accidents, sexual health and tobacco abuse include sections on 'What do we know?' and 'Research Gaps' because they are the only chapters based on *systematic methodological* reviews.



# 1. Accidents

Accidents are the most common cause of death among young people, with road traffic accidents accounting for three-quarters of all accidental deaths between the ages of 15 and 24 (Fact Sheets 1995); the UK has one of the poorest records in Europe for child pedestrian deaths in the 10-14 age group (Towner *et al.* 1994). For every death in a road accident, 2 to 3 young people are permanently disabled.

Death and adverse effects due to accidents have shown a consistent decline over the last 20 years in the general population, but the 1991 death rates in the 15-24 years age group are higher than for any other age group under 64 (Fact Sheets 1995).

The Health of the Young Nation targets are to reduce accident-related death rates by at least 33% in under-15 year olds (from 6.6 per 100,000 population in 1990 to no more than 4.4) and by at least 25% in 15-24 year olds (from 24.0 per 100,000 population in 1990 to no more than 18.0) by the year 2005 (Fact Sheets 1995).

## **Research Questions**

Descriptive studies have focused on the definitions of accidents and injuries; and the epidemiology of accident-, death- and injury-rates, and risk exposure in relation to socio-demographic variables.

A great variety of interventions has been carried out in different settings including schools, home, the workplace, the road environment, leisure and sports environments, and the wider community. Two systematic literature reviews have recently been completed with the aim of identifying effective interventions : the review by Towner *et al.* (1995) targeted 0-14 year olds; the review by Coleman *et al.* (1996) targeted 15-24 year olds. Interventions included educational programmes, training, legislation, environmental engineering, vehicle engineering, protective clothing/equipment, and inducements.

## **Note**

This chapter includes sections on 'What do we know?' and 'Research gaps' because it is based on systematic reviews which have taken into account the methodological quality of intervention evaluations with the aim to identify the subgroup of 'sound' studies from which reliable conclusions about effectiveness can be drawn (Coleman *et al.* 1996; Towner *et al.* 1995).

## ***Descriptive Studies***

Accidents are commonly defined in terms of their injury producing-effects (Roberts *et al.* 1991). Suchman (1961) challenged this conventional definition, suggesting that the two major attributes of accidents - unpredictability and injury- are to a large extent independent of each other, and, while the presence of an injury or damage may be the necessary condition for a medical or legal interest in accidents, it is not an inherent part of the definition of the accident phenomenon.

There are a number of sources of official data on child accidents, but the information available should be more appropriately termed injury- rather than accident-data. Roberts *et al.* (1991) argue that in separating the injury from the unexpected event, we are left with important gaps in knowledge. It is clear that the nature of the accident may not be reflected in the injury that occurs, and similar events may result in entirely dissimilar outcomes. Consequently, the official data underestimate the true incidence of accidents, leaving a gap of unreported and unrecorded events.

Epidemiological data on the distribution of child accident deaths and accident associated morbidity indicate that accidents are not randomly distributed within the population : there are wide geographical and regional variations in child accident rates; the social gradient for deaths due to accidents is steeper than that for deaths from all causes; and boys are significantly more likely to have an accident and to be killed in an accident than girls (Avery *et al.* 1990; Blondel *et al.* 1985; Townsend *et al.* 1988). Environmental, social and behavioural factors are well-documented, though not adequately understood (Bijur *et al.* 1981; Pless *et al.* 1989). At the level of the family, there is a body of psychological and sociological work which identifies links between accidents and family composition, unemployment, stress, maternal depression, housing conditions and a variety of other factors (Brown and Davidson 1978; Littlewood and Tinker 1981; Lowry 1990; Ranson 1987; Sibert 1975; Sinnot and Jackson 1987; Wadsworth *et al.* 1983).

Despite the recognition of a steep social class gradient in child accidents, there has been scant attention to accidents as an aspect of inequality in child health (Roberts *et al.* 1991). Research on social inequalities in the experience of accidents and injury during childhood too often perpetuates distinctions between social, psychological and material explanations for these patterns. For effective preventive strategies to be developed, the fact that there are multi-factorial causes must be recognised (Popay *et al.* 1993).

Laidman (1987) indicate the importance of detailed local data for effective health promotion. Death is too rare an event to provide information on which to base local campaigns (Towner *et al.* 1994); and admission to hospital does not accurately reflect the community distribution of injury - selection biases such as bed supply and social class influence admission of all but the most severe injuries (Walsh and Jarvis 1992).

Not every child in a community has an injury event, but every child carries some degree of injury risk. However, there is a dearth of information on the risk factors for injury in children/young people. Towner *et al.* (1994) collected risk data from 4637 young people aged 11-14 in 24 schools in Newcastle and calculated relative risks for different groups according to sex, age, and affluence, with the aim of identifying the most vulnerable groups for different types of risk. In general, boys, older pupils, and pupils from poorer households were exposed to greater risk of injury when travelling to and from school and recreational places (Towner *et al.* 1994). Monitoring environmental risks through safety inspections as a component of accident prevention programmes (Schelp 1987b; Bjaras 1987; Bjaras *et al.* 1990) identified a wide range of separate risk factors including: collisions, risk of tripping, risk of falling, projecting or broken objects, open electrical boxes and poisonous plants (Bjaras *et al.* 1990).

Not all risks in the environment are susceptible to change; for example, the location of a child's home will determine the number of roads that have to be crossed. Other factors are more amenable to change: the provision of safe crossing facilities, pupils' use of crossing facilities, the provision of safe play facilities, and the speed of traffic on roads near schools or where children play. Some changes to reduce children's exposure to road environment may lead to other problems; for example, encouraging accompaniment of children on the school journey by adults or encouraging greater use of public transport rather than walking can greatly inhibit a child's developing independence; higher parental accompaniment by car results in greater road use and more risk to child pedestrians when children are taken or collected from school (Towner *et al.* 1994).

### ***Health Promotion Interventions***

Towner *et al.* (1995) examined in detail 135 evaluated interventions most of which (79%) targeted the 0-10 age group; only 21% were targeted at 10-14 year olds. The studies were not evenly divided over the different injury types: there were numerous studies for the promotion of child safety restraints in cars and of cycle helmets, but few evaluated interventions in the field of sports and leisure injuries. The size and scale of studies also varied. The types of interventions included were any planned measure which promotes health or prevents disease, disability and premature death, and encompasses health education, environmental modifications and legislation in three environments: road (58% of the interventions); home (31%) and leisure (1%); and community-wide programmes (10%). Most of the interventions (84%) had some educational component, 70% included an environmental modification; 18% related to legislation and only 10% combined education, an environmental modification *and* legislation. More recent studies had a greater emphasis on targeting social deprivation. Most of the educational campaigns were directed at individual behaviour change of parents and/or children/young people. Whether these interventions were effective depended mainly on the nature of the intervention, its suitability to the

target group, the methods employed (didactic versus participatory), the number of messages included, the duration of the campaign, and the other significant groups involved. The role of health education in influencing local and national policy makers, however, has been largely neglected, as well as its role in underpinning both legislative and environmental change (Towner *et al.* 1995).

Coleman *et al.* (1996) examined the effect of more than 70 different interventions aiming to prevent accidents (i.e. primary prevention) or minimise injury (i.e. secondary prevention) among young people aged 15-24 years, which were evaluated in 144 studies. They classified accident prevention initiatives into four broad categories : engineering-, educational-, enforcement- and inducement-approaches. The engineering category included the modification of the physical and public environment to eliminate some of the risk factors for accidents (e.g. traffic calming schemes) and product engineering (e.g. cycle helmets). Educational approaches were aimed at increasing knowledge and awareness of the risk factors for accidental injury, in order to influence behaviour positively (e.g. driver improvement courses, media campaigns). The enforcement category included laws or rules which govern certain behaviours. Finally, the inducement approach included inducing changes in behaviour or activity by incentives to make certain activities more attractive (e.g. policies to alter the relative costs of travel and thereby favour less risky forms of transport such as bus travel).

Sixty-five percent of the studies focused on the road environment; 2% on accident prevention at home (smoke detectors); 4% on the workplace (education); 3% on the community (multi-factorial and multi-agency); and 26% on sport and leisure (changes to rules of sports, education, protective clothing/devices, modifications to the environment).

Fifteen percent of the road environment studies were aimed at bicycle users (visibility, helmet use); 17% at motorcycle users (visibility, helmet use, motorcycle design, training, legislation); 22% at other road users (education/training, vehicle engineering, legislation); 8% involved behavioural approaches targeted at car drivers (education, rewards, multi-factorial measures); 2% road environmental engineering (speed control humps, area-wide urban traffic safety measures); and 1% inducements (subsidising bus fares). Eleven studies (8%) also included a cost-effectiveness analysis of interventions in the road or sports environment (Coleman *et al.* 1996).

Popay *et al.* (1993) identified a range of community-based initiatives, very few of which were formally evaluated, based on two models : the health planning model which involves formal agencies delivering a preventive programme in a 'top down' approach (Guyer *et al.* 1989; Hammarstrom 1989; Klang *et al.* 1992; Schelp and Svanstrom 1986, 1987); and the community participation model which involves community members more directly in the design, management and implementation of the intervention (Bjaras 1989; Bjaras *et al.* 1991; Bryce *et al.* 1993; Graham and Svanstrom 1992; Roberts *et al.* 1992; Stone and Bryce 1992).

Though both approaches involve a range of specific activities, there is a tendency for health planning initiatives to emphasise education and behaviour change and for community participation approaches to focus on changes in the physical environment (Popay *et al.* 1993). Read (1989) argued that passive measures involving an environmental modification are easy to implement because they require the cooperation of few individuals on few occasions; active measures on the other hand, aim to change behaviour which requires the cooperation of many individuals on many occasions. In practice however, political factors tend to favour the implementation of active measures rather than passive measures, as the latter are much more dependent on political support (Mauthner 1993).

### ***What do we know?***

In the review by Towner *et al.* (1995), 18% were randomised controlled trials (RCTs); 38% were non-randomised trials; the rest were designs without a control/comparison group. The more robust experimental designs were limited to single measure interventions (e.g. cycle helmets) and 'closed' systems such as schools or health centres; none were carried out in community settings. The analysis of effective injury prevention methods was greatly inhibited by the lack of : information provided in the report, control groups, and good outcome measures. Pooling of findings from studies targeted at the same injury in similar population groups was difficult because of inconsistency in the choice and measurement of outcomes.

Interventions reported as effective in *reducing injury* included : bicycle helmet legislation, area-wide traffic calming measures, child safety restraint legislation, the use of window guards, and domestic product design (e.g. the use of child resistant containers). Some large scale environmental measures such as area-wide urban safety programmes reduced both bicycle and pedestrian injuries. In smaller scale measures like the promotion of bicycle helmets, child car restraints and safe containers for storage of paraffin, education needed to be reinforced by the easy availability and the affordability of the device. It is essential that a device of which the use is being encouraged by educational campaigns, is technologically sound and sufficiently robust.

Interventions reported as effective in *changing behaviour* included : bicycle helmet education and legislation, child restraint legislation, child restraint loan schemes, child restraint educational campaigns, pedestrian education aimed at the child/parent, provision of smoke detectors, parent education on home hazard reduction, education campaigns enhanced by targeted advice (i.e. short, concrete, meeting immediate needs) from health professionals. Training children in a limited number of skills in real road environments or on 'table top' models seemed to be effective in changing behaviour. However, some authors have questioned the effectiveness of road safety initiatives which use artificial situations (Tursz and Manciaux 1993).

The approach used in one programme 'Think First' aimed at reducing brain and spinal injuries in 11 to 18 year olds was judged ineffective and possibly harmful; it consisted of a one-off lecture containing a wide range of messages which were not followed up with other curricular activities (Towner *et al.* 1995).

Legislation and regulation can offer protection. The capacity to bring about environmental and legislative change is often based on a climate of positive opinion resulting from educational campaigns. For those measures requiring more repetitive action (e.g. bicycle helmets or seat belts in cars), education also seemed necessary to maintain usage levels after legislation. Feed-back, rewards and behavioural rehearsal were indicated as important to the success of educational programmes and preferred to didactic and passive measures (Towner *et al.* 1995).

Coleman *et al.* (1996) concluded that few interventions were evaluated in good quality RCTs, hence they made their recommendations based on the graded methodological quality of the study as well as on the success of intervention implementation. The strength of most recommendations was weak mainly because the study findings were based on surrogate measures or on trials in laboratory conditions, and information relating to efficacy or implementation was lacking. The most effective interventions seemed to be legislative or regulatory controls in road, sports and workplace settings, though the reported reductions in numbers of accidents may have been due to variations in exposure only. Environmental engineering on the road and in sports were often effective: they were associated with relatively low costs to implement and fewer injuries occurring in *all* ages. Multi-factorial approaches seemed to be more effective in modifying behaviour than narrow approaches. There is little existing evidence to demonstrate that purely educational measures including skills training, mass media exposure, and targeted education courses, reduced the numbers of accidental injuries in the short term. However, education seemed to play a role in multi-factorial approaches and in underpinning legislation. Interventions for which there is good evidence to support their recommendation are : raising the minimum legal drinking age; use of motorcycle helmets; environmental engineering and prophylactic injury prevention programmes in sports. There is fair evidence for : the use of bicycle helmets; area-wide urban traffic safety measures; speed control humps; curfews on the road; the use of airbags and seat belts; subsidised public transport; warning notices and low cost of compliance measures to encourage use of protective devices in sports; and smoke detectors. Interventions for which there is fair or good evidence to *reject* their recommendation are: formal enhanced pre-car license driver training and education; periodic motor vehicle safety checks in combination with random roadside inspections; and driver improvement programmes for 'problem' drivers. Two cost-effectiveness studies were carried out in the UK, though their basis for calculating the figures was unclear. Other cost-effectiveness studies from the USA and Canada, though more robust in their approach, were not directly applicable within the UK context (Coleman *et al.* 1996).



Evidence on the effectiveness of community programmes was scant; evaluations were not routinely carried out (Berfenstam 1987) and very few trials of these types of interventions have been done (Popay *et al.* 1993; Towner *et al.* 1995). Findings have been contradictory and probably reflect the diversity in methodological quality of the evaluations and in type of interventions which are only in broad terms similar. General campaigns aimed at improving safety in the home seemed not to be effective (Dershewitz and Williamson 1977) whilst more targeted initiatives with at-risk groups (Mathews *et al.* 1987; Tertinger *et al.* 1984) or constructive practical advice (Colver *et al.* 1982) may have more impact. In terms of personal safety for children, there was some indication that initiatives which involved 'behaviour rehearsal' were more effective than passive knowledge transmission (Poche *et al.* 1988). Studies on the effect of staff education on playground hazards reported contradictory results (Fisher *et al.* 1980; Sacks *et al.* 1992) which may be linked to differences in the content of the training and education involved. Important factors in the success of community-based interventions were the sustained use of surveillance systems, the commitment to inter-agency cooperation, and time to develop networks and implement a range of interventions. Coleman *et al.* (1996) indicated that there is encouraging evidence, mainly from Sweden, that community-based approaches promoting safety measures in many settings simultaneously may be effective in *all* age groups. The most promising interventions seemed to be those combining educational, environmental modification and legislative approaches; these often required the collaboration between different agencies on a long term basis (Towner *et al.* 1995).

Adams (1988) argued that safety measures will only be effective in reducing the frequency and severity of accidents if they succeed in changing people's attitudes towards risk-taking; if not, many initiatives will only succeed in re-distributing the risk, not reducing it overall. Popay *et al.* (1993) believe that some approaches to prevention may at best have no impact on social inequalities and at worst may exacerbate them: initiatives may lead to a disproportionate reduction in the risk of accidents to children in better material circumstances; or reduce the risk overall but increase the risk for children living in poor material circumstances. For example, initiatives to reduce the risk to car occupants, such as seat belts, may lead to people driving faster, disproportionately increasing the risk to pedestrians and other non-car users (Adams 1988).

### **Research Gaps**

The inadequacy of routine information on accident rates, accidental injuries and risks/hazards is a considerable obstacle to the design of interventions and a factor limiting the evaluation of preventive work.

There are important gaps in the information on: primary care consultations and attendance at Accident and Emergency departments for accidental injuries (Popay *et al.* 1993); exposure and associated true relative risks in the age group 0-14; incidence, causes and relative risks

in the age group 15-24 (Higginson 1995); and patterns of accidents amongst children from ethnic minorities or those with existing disability (Popay *et al.* 1993). In addition, existing routine data sources in the UK are fragmented across a range of agencies, each focusing on different details and using different definitions of the same phenomenon; this means that data are not comparable and can be conflicting (Popay *et al.* 1993).

Unintentional injury death rates show considerable geographical and social variations in the UK, and there is a strong correlation of death rates with social deprivation. Although increasingly more attention has been paid to this issue, the broad context of social, transport and land use policies are rarely looked at in relation to child and youth injury. Research into this area is needed as its potential would appear to be high (Towner *et al.* 1995).

The design of injury prevention programmes should be based on what is reliably known about the effect of interventions to date. There is a continued need for regularly updated literature reviews based on the methodological assessment of the quality of evaluations, and for the findings of these to be disseminated to policy makers, researchers and practitioners (Towner *et al.* 1995).

Strategies which have shown to be effective in rigorous studies elsewhere should be evaluated at local level and include a long term follow-up.

The evaluation design of injury prevention programmes needs to be improved so that more reliable evidence can be obtained. There is a need for increased use of randomised controlled trials. Where these are not possible or appropriate, equivalent control/comparison groups should be included.

There is a clear need for research into appropriate, sensitive and consistent measures of impact, intermediate outcome and injury severity (Higginson 1995). With death too rare an outcome for the targeting or evaluation of local campaigns, it is essential to develop good quality measures of non-fatal injury. Where proxy measures are used for injury outcomes, it is important that there is clear evidence of the association between the proxy (e.g. hazard removal, knowledge gain or behaviour change) and injury risk; observations of behavioural and environmental changes are preferable to reported behaviour measures in that they eliminate difficulties of memory and interpretation (Towner *et al.* 1995).

Evaluations should include process measures such as network analysis or programme exposure which may help in answering the more difficult questions of why a programme works in specific circumstances or localities and not in others. This is particularly important with respect to the consideration that successful or promising interventions reported outside the UK may not necessarily be applicable to the UK (Towner *et al.* 1995).

The literature describing the costs and benefits of accident prevention remains rudimentary, particularly in the UK (Popay *et al.* 1993). More research on cost-effectiveness of interventions should be carried out within the local context (Higginson 1995).

Other research gaps include : information on risks and near misses; the long term social, economic and health consequences of accidents (Popay *et al.* 1993); and understanding the influences on risk-taking, particularly in the age group of 15-24 year olds (Higginson 1995).

## **2. Mental Health**

While severe mental illness, such as schizophrenia, is rare in children and very uncommon in young adults, between 10% and 20% of young people may require help at any one point due to mental health problems. The following prevalence for mental disorders in young people have been noted: 2-8% major depressions; 1.9% obsessive/compulsive disorders; 0.5-1% anorexia nervosa in 12-19 year olds (8 to 11 times more common in young women); 1% bulimia nervosa in young women; 2-4% attempted suicides; 7.6 suicides per 100,000 population aged 15-19. Deliberate self-harm is increasing amongst young women; and suicide rates in young men have shown an overall upward trend since the early 1970s. In 1992, there were 582 male and 132 female suicides in 15-24 year olds in the UK. Approximately one in three young people who commit suicide is intoxicated at the time of death and others are under the influence of drugs (Fact Sheets 1995).

The Health of the Nation targets are to reduce the overall suicide rate by at least 15%, and the suicide rate of severely mentally ill people by at least 33% by the year 2000 (Fact Sheets 1995). These targets are not specifically related to young people, though it is acknowledged that young people are vulnerable to mental disorders which, if untreated, may have serious consequences in adult life. Preventing behavioural disorders in children is listed as a possible future target (Black 1992).

### ***Research Questions***

Descriptive research in this field has mainly focused on the prevalence, types and etiology of mental health problems in young people. A wide range of interventions have targeted suicide prevention; very few interventions are related to the prevention of eating disorders.

**Table 2** shows the breakdown according to type of health promotion studies in young people in the area of mental health as identified from the diverse electronic searches used (see methods). Though the number of studies nearly doubled in recent years, studies reporting an outcome evaluation of a mental health promotion programme constituted only 6% of the total number of mental health-related studies both before 1990 and from 1990 onwards.

**Table 2** Number/percentage of types of health promotion studies in young people in the area of mental health, before 1990 as compared to the period from 1990 onwards

|                     | <1990      | ≥1990      | Total      |
|---------------------|------------|------------|------------|
| Descriptive studies | 218 (94%)  | 378 (94%)  | 596 (94%)  |
| Outcome evaluations | 15 (6%)    | 26 (6%)    | 41 (6%)    |
| Total               | 233 (100%) | 404 (100%) | 637 (100%) |

### ***Descriptive Studies***

The mental health of young people refers to their emotional well-being in its widest sense, including the capacity to learn and study, enjoy relationships, meet challenges, etc. It therefore involves various social, educational, environmental, as well as health issues (Wilson 1995).

The popular notion that ‘adolescence’ is a period of great psychological upheaval and alienation from the family has not been supported by research. Psychiatric conditions are only slightly more common in ‘adolescence’ than in middle childhood; and relationships between young people and their parents are generally positive. The majority of mental problems in young people tend to be emotional or conduct disorders. With increasing age, emotional disorders tend to be differentiated into adult neurotic disorders (e.g. depression and anxiety states with panic attacks); and conduct disorders tend to be characterised by an increase in the extent of anti-social activities. During ‘adolescence’, there is a decrease in incidence of those conditions which are predominantly developmental in origin, but an increase in psychiatric problems such as substance abuse, psychotic disorders, eating disorders and suicidal attempts (Hughes *et al.* 1994).

In a four-year study (1990-1993), an international group found conclusive evidence to support the notion of an increase in all mental disorders during teenage years, except eating disorders. An examination of the trends of psychosocial disorders by age and gender revealed differences in mental health problems between young men and women : rates for crime, suicide, and substance abuse are higher for young men; rates for depression, eating disorders, and suicidal behaviours are higher for young women. However, there was also a trend towards converging rates for crime, substance abuse, depression, and suicidal behaviours (Court 1995).

Both promoting positive mental health in young people and treating mental health problems as soon as they occur are important, as untreated mental health problems create distress, not only in affected young people, but in all those who share their lives. Mental health problems are also associated with continuing or additional mental health

difficulties in adult life; and an increase in the demands on social and juvenile justice services, as well as on special education resources. Unrecognised mental health problems in children with chronic physical illness may also reduce the effectiveness of the physical care they receive (Department of Health 1995a).

For those with a mental health disorder in 'adolescence', the risk for a mental disorder in later life is high. A study by Feehan *et al.* (1993) found that two thirds of those with a disorder at age 15 also had a disorder at age 18. Conduct disorders were associated with the highest risk of later disorder. Comparisons between those with recurring disorder and those with a new disorder at age 18 showed that in addition to characteristics of the disorder itself, social disadvantage was strongly associated with recurrent disorder. It was concluded that to reduce the risk of mental disorder in early adulthood, health professionals should play a more active role in community interventions with direct social outcomes. Rey (1992) also suggested that the link between mental health problems in 'adolescence' and those in later life pointed firmly into the direction of early intervention. Improving the mental health of young people should, however be an end in itself and not merely a means of improving adult functioning (Black 1992).

Several studies have indicated a wide variety of causes of mental health problems such as : an accident during pregnancy, at birth or soon after, especially if this leaves the child with a learning difficulty; genetic factors; maltreatment such as neglect, abuse or rejection; family discord, inconsistent or harsh discipline; a loss of something or someone the child loves, through death, divorce or abandonment; poverty, homelessness and general insecurity, such as when the child is repeatedly moved from one home or family to another; serious illness especially if chronic, such as diabetes, cystic fibrosis, asthma (Bernstein *et al.* 1986; Breslau and Marshall 1985; Department of Health 1995b; Rutter and Quinton 1984; Steinhausen and Radtke 1986; Tyson 1986). Cause and effect are very difficult to distinguish when considering the influence of mass media on the mental health of young people (Lamontagne 1993). For example, a study by Hennigan *et al.* (1982) reported that television may promote criminality, whereas Dood and MacDonald (1979) point out that criminality is mainly located in deprived areas where families spend more time watching television. The etiology of mental problems reflects an interaction of a variety of factors involving the child, family and environment (Gallagher and Bradley 1972; Hughes *et al.* 1994).

The type of peer group appears to be an important factor in young people's psychological problems. A study by Downs and Rose (1991) supported other research on the existence of a peer-labelling process. The peer group with the lowest level of involvement in school activities was negatively labelled by other young people. This group generally had the most positive attitudes towards alcohol and drug use; the lowest levels of perceived harm due to alcohol and drug use; and the highest levels of alcohol abuse, drug use, delinquency, and depression. The negatively-labelled group also had the lowest levels of self-esteem; a

more pronounced external locus of control; the lowest perceived access to occupational opportunities; and the highest level of societal estrangement. Helping these young people to improve their skills and to gain access to more positively labelled peer groups may indirectly lead to decreased levels of problem behaviours and mental health concerns (Downs and Rose 1991).

Research has documented the relationship between long-term unemployment and mental health problems such as depression and low self-esteem among unemployed young people (Feather and O'Brien 1986; Hammer 1993; Warr *et al.* 1988; Winefield *et al.*). Longitudinal studies have shown the relationship between unemployment and mental health problems: unemployed young people with an insecure financial situation experienced negative mental symptoms; and young people with mental health problems have a higher probability of continued unemployment (Rosvold and Hammer 1991). Madsen (1982) found that the lack of employment prospects had serious consequences for identity formation. Warr *et al.* (1988) reported lower self-esteem among unemployed recent school-leavers, and increased isolation (Donovan and Oddy 1982) which in turn has been found to lead to depression, especially in unemployed single mothers (Beck-Jorgensen 1991). Social support and contact with close friends had a moderating effect on nervous symptoms in women but not in men (Hammer 1993). Adult unemployment raises the chance that a man will die in the next decade by a third, and for those in middle age with high family commitments, the chances double. The most likely causes for death are suicide, cancer, accidents and violence (Moser *et al.* 1986, 1987; Warr 1987). Exactly how unemployment is linked to death is unclear, but it is thought to be through a combination of poverty, stress, adoption of unhealthy behaviours and the devastating effects on mental health (Smith 1992).

### ***Deliberate self-harm***

During 'adolescence', there is a significant increase in the frequency of depressive conditions with symptoms including depressed mood, fatigue and social withdrawal. There may also be associated symptoms of anxiety, appetite and weight disturbance, and anti-social behaviour or conduct disorder. Depressed young women outnumber depressed young men by about two to one (Hughes *et al.* 1994). Along with this increase in depressive disorders, there is also an increase in the frequency of deliberate self-harm and suicide. Common methods of deliberate self-harm are taking an overdose and wrist-cutting; suicide happens in a variety of ways including hanging and overdosing. Deliberate self-harm occurs about three times as often in women than in men, and is over 200 times as common as suicide. About one in ten young people who deliberately harm themselves, repeat this behaviour in the next year. Those exhibiting repeated self-harm have been found to have a high rate of : alcohol and drug abuse; living away from home; poor peer relationships; early parental loss; and psychiatric disturbance. About half have attended a medical agency - usually their GP- in the previous month; the visit is often connected in some way with the problem which

leads to the attempt to deliberate self-harm (Hughes *et al.* 1994). Of every 100,000 young people aged between 15 and 19, 400 attempt suicide each year and three succeed (Kurtz 1992). At least a quarter of these young people have serious psychiatric disorders (Taylor and Stansfeld 1984) and 10% of young men and 3% of young women who attempt suicide go on to kill themselves (Otto 1972). Suicide is twice as likely to occur in men than in women (Hughes *et al.* 1994).

### ***Eating disorders***

Anorexia nervosa is a condition defined by the presence of significant, self-induced weight loss, body-image distortion and a widespread endocrine disorder which gives rise to delayed menarche or secondary amenorrhoea. Bulimia nervosa shares the same psychopathology but is characterised by repeated bouts of overeating followed by extreme measures (e.g. vomiting, laxative abuse) to negate the 'fattening' effects of the ingested food (Hughes *et al.* 1994). Concurrent symptoms or cross-over between the two types of eating disorders appears to be quite common. Comparisons in prevalence rates however, are difficult due to the use of different criteria and measurement instruments (Fischer *et al.* 1995). Although they are usually classified as psychiatric conditions, eating disorders are associated with significant morbidity and mortality, as well as social complications.

Although eating disorders primarily affect young people, much of the literature fails to consider the unique physiologic, psychologic and developmental issues relevant to them (Fisher *et al.* 1995; Position Paper of the Society for Adolescent Medicine 1995). Most studies exploring the relationships between eating disorders and issues as body image, self-esteem, depression, anxiety, substance use, suicidal behaviours, family functioning, and sexual abuse have included both young people and adults, but have paid little attention to the ways these issues are different for young people as compared to adults.

At the same time as the prevalence of obesity increases among young people (Gortmaker *et al.* 1987; McCargar *et al.* 1993), so does anorexia nervosa and bulimia among young women (Kreipe and Carafos 1985; Krey *et al.* 1989; Nagel and Jones 1992; Pope *et al.* 1984). Some studies have suggested that health-risk behaviours tend to cluster in vulnerable young people and that abnormal eating attitudes and behaviours may be part of this cluster, especially in young women with low self-esteem and high levels of anxiety (Fisher *et al.* 1991). In surveys of high school students in the USA, young people with greater disturbances in eating attitudes and those engaging in episodes of purging, also reported higher rates of alcohol consumption, marijuana use, cigarette smoking, and sexual activity (Fisher *et al.* 1995). Young people with disturbed eating attitudes and behaviours also tend to have a lower self-esteem (Grant and Fodor 1986; Gross and Rosen 1988), more self-doubt (Maceyko and Nagelberg 1985), feelings of inadequacy (Kagan and Squires 1984), a negative body image (Johnson *et al.* 1984), anxiety (Vincent 1984), social dysfunction (Carter and Duncan 1984), depression (Crowther and



Chernyk 1986), moodiness (Vincent 1984), substance abuse (Killen *et al.* 1987; Post and Crowther 1985), perceived discrepancy between actual and ideal weight (Crowther and Chernyk 1986; Post and Crowther 1985), and tend to be more likely to have a background of failed parental relationships (Eisele *et al.* 1986). In general, anorexics tend to be more introverted, obsessive, distrustful in their relationships with others, and sexually inexperienced than bulimics; bulimics tend to be more extroverted, impulsive, sexually active, and experience more mood swings than anorexics. Anorexics and bulimics resemble each other in their imperfectionism, low self-esteem, and tendency toward depression (Shisslak *et al.* 1990).

About one third of people with an eating disorder appear to make a full recovery; one third maintain a reasonable body weight but remain preoccupied with their appearance; and one third either fail to reach a satisfactory weight or to maintain it. Severe personality problems are more likely in the last group and a small percentage of those commit suicide (Hughes *et al.* 1994).

Many young people exhibit the abnormal eating attitudes and behaviours usually associated with the diagnosis of an eating disorder, though most do not meet *all* of the criteria for the specific diagnoses of anorexia or bulimia nervosa. Studies have reported that 4-8% of 'adolescent' and young adult women have characteristics consistent with the diagnosis of an eating disorder; and an additional 5-10% have characteristics that may be considered as signifying subclinical eating difficulties (Button and Whitehouse 1981; Cooper *et al.* 1984; Garner and Garfinkel 1980; Mann *et al.* 1983).

Especially in the light of studies which have indicated that body image distortion and dieting precede and/or contribute to the development of anorexia nervosa (Schotte and Stunkard 1987; Weinstein and Richman 1984), it is very important that any nutrition counselling evaluates whether students, especially women, who desire to lose weight actually need to lose weight. Focusing efforts towards a positive body image and long-term strategies for improved health through diet and exercise could be more appropriate (Welch *et al.* 1992). Dissatisfaction with body weight is a major concern of many university students (Collier *et al.* 1990; Miller *et al.* 1980). Welch *et al.* (1987) showed that nutrition counselling at a university wellness centre can improve some aspects of students' eating behaviour, but relatively little is known about the characteristics of this population. A study by the same authors (Welch *et al.* 1992) found that of the 106 students who sought nutrition counselling, 69% were women, two thirds were classified as moderately or very overweight, though almost 40% overestimated their own body size; more than two thirds reported that a family member was overweight; and half of the respondents had dieted at some point. Several other studies have indicated that fear of being overweight and associated inappropriate eating behaviour is common in young people (Fisher *et al.* 1991; Moore 1988; Moses *et al.* 1989; Szmukler 1983).

## **Health Promotion Interventions**

Several studies including meta-analyses have shown positive effects of physical activity on anxiety (Petruzzello *et al.* 1991), depression (North *et al.* 1990), emotion (Boutcher 1993; Tuson and Sinyor 1993), quality of life (Berger and McInman 1993) and general mental health (Leith and Taylor 1990; Raglin 1991). In view of these studies, it is surprising that there has been little emphasis on the mental benefits that regular exercise may offer (Fox 1995). *See also Physical Activity.*

### **Interventions to prevent deliberate self-harm**

A wide range of suicide prevention interventions have been undertaken, including : school-based educational and screening procedures; hotline and crisis services; controlling access to the methods most often used to commit suicide; minimising opportunities for suicide imitation; and treatment of suicide attempters. The effectiveness of these interventions has mainly been tested in adult populations, hence evidence of their effect in young people is scant.

A recent review by Gunnell and Frankel (1994) indicates that no single intervention has been shown to reduce suicide in a well-conducted randomised controlled trial. The authors urge the use of controlled trials where possible, though admit that the sample sizes required to demonstrate the effectiveness of population-based interventions, targeted at such rare events as suicide, need to be very large. Among the interventions most amenable to adequate evaluation are : strategies to reduce suicide among those recently discharged from psychiatric care; general practitioners' postgraduate education; and limiting quantities of over the counter medicines as well as prescription quantities of particularly toxic drugs (Gunnell and Frankel 1994).

Shaffer *et al.* (1988) indicate that the greatest preventive impact may come from effective interventions directed at young men who have made a previous suicide attempt or who are depressed. However, Gunnell and Frankel (1994) argue that there is no single, readily identifiable, high risk population that constitutes a sizeable proportion of overall suicides and yet represents a small, easily targeted group. Many school-based suicide prevention programmes have been directed at unselected groups of secondary school students on the assumption that, given sufficient stress, there is a universal potential for suicide.

School-based programmes have mainly assessed changes in attitudes which do not necessarily predict a related behaviour in a time of crisis. They have generally had little impact on inappropriate attitudes to suicide such as the attitude that 'under certain circumstances suicide is a reasonable solution to problems'. It has been suggested that the absence of an overall effect of school-based interventions may be due to the very brief exposure of students to these programmes. This is not to say that these programmes have not been of value as they may have helped

some students to identify themselves as currently being troubled or suicidal and needing professional help (Shaffer *et al.* 1987).

Evaluations of telephone crisis services for young people have been limited to measuring user satisfaction : most of the young women, but fewer of the young men, found the helpline helpful; a third of the men and a fifth of the women reported that the advice given had made their problem worse; and both sexes reported greater satisfaction when their call had been taken by an operator of the opposite sex (King 1977; Slem and Cotler 1973). Evidence of the impact of a hotline on mortality from suicide is inconclusive and open to ecological fallacy<sup>2</sup> (Bridge *et al.* 1977; Lester 1973; Litman and Farberow 1969; Miller *et al.* 1984; Weiner 1969). The impact of hotlines is potentially limited for several reasons : low utilisation rates due to low knowledge of the existence of hotlines; inappropriate advice; and low compliance with advice given. However, it is probably a mistake to dismiss hotlines as well-intentioned but ineffective, because they do seem to serve a needy and otherwise underserved population. King (1997) found that only 8% of the callers were receiving other mental health services. It is important : to develop a standardised, clinically-informed screening procedure coupled with active case management procedures; to use experienced and trained people; to appropriately direct the advertising of the service; and to systematically assess reasons for calling, and age and gender of callers with the aim to determine whether the target group is being reached (Shaffer *et al.* 1988).

Because youth suicide is often an impulsive act, it is reasonable to expect that limiting access to methods that are commonly used to commit suicide could reduce suicide rate. A reduction in carbon monoxide content of British domestic gas from 12% in 1957 to 2% in 1970 coincided with a steady decline in suicide rates from self-asphyxiation from 40% to 10% of all British suicides, with the total suicide rate declining by 26%; there was no compensatory increase in suicidal deaths by other means (Hassall and Trethowan 1972). British rates, in contrast to those in most other countries, remained at the new lower level for many years (Farberow 1985). What may have happened was that the suicidal population, denied access to one universally available, non-deforming, non-violent method, did not turn to other more violent methods to commit suicide (Shaffer *et al.* 1988). Similarly, it is likely that the introduction of the catalytic convertor leading to reduced lethality of car exhausts will be associated with reductions in suicide (Gunnell and Frankel 1994). Positive results could potentially also be expected from a decreased availability of firearms, though there seems to be a complex relationship between gender, substance abuse and suicide by firearm (Brent *et al.* 1987).

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<sup>2</sup>There is an inverse correlation between the number of hotlines established and the national suicide rates. However, that does not necessarily mean that the people who did not commit suicide, were the ones who had phoned the hotline.

'Postvention' - an intervention started after a suicide has occurred and involving family survivors, the school and/or the community-, could serve several preventive functions including reducing the likelihood of imitation (Shaffer *et al.* 1988). Rogers *et al.* (1982) reported an uncontrolled evaluation of postvention which indicated a decline in the somatisation, phobic and obsessive-compulsive components of a psychiatric assessment scale. However, due to the lack of a control group, it was impossible to assess whether these changes would have occurred anyway. There are many outstanding questions with respect to postvention procedures, especially in schools.

Research must address the experience of young men and women to understand the problems of rising suicide, and treatment must address aspects of social and economic policy at a national level (Gunnell and Frankel 1994).

### ***Interventions to prevent eating disorders***

At present little research effort seems to have been devoted to the promotion of healthy weight regulation among *normal* weight young people. We identified only two outcome evaluations of programmes directly targeted at the prevention of eating disorders. The first was a pilot project for the prevention of eating disorders, aimed at educating secondary school students and staff about the incidence, symptoms and consequences of eating disorders; consultation and referral services were also provided. Evaluation of the education component showed an increased knowledge and awareness in the intervention group as compared to a control group (Shisslak *et al.* 1990). In the second study, Killen *et al.* (1992) reported on the "first long-term (2 years) controlled study" evaluating the effect of a prevention curriculum designed to modify eating attitudes and unhealthy weight regulation practices of young women. The programme was based on education about the harmful effects of unhealthy weight regulation; promotion of healthy weight regulation through diet and exercise; and development of coping skills for resistance to socio-cultural influences of thinness and dieting. Though an increased knowledge was observed, only a small albeit statistically significant effect on body mass index was noted in high-risk young women. It was concluded that an untargeted intervention is unlikely to be cost-effective.

In the light of studies which have indicated that body image distortion and dieting precede and/or contribute to the development of eating disorders, and the relationship with low self-esteem, depression, anxiety, social dysfunction, suicidal behaviours, and substance abuse, interventions focusing on a positive body image, improving mental health, a healthy diet, physical activity and substance abuse prevention are all relevant here. Several of these are described elsewhere in this document.

### 3. Nutrition

The last National Survey in the UK of nutrition in schoolchildren aged 10-11 and 14-15 was carried out in 1983. Its findings and those of more recent, smaller studies have shown that nutrient intake is below the recommended levels for iron and calcium and above the recommended levels for fat, saturated fats and sugar.

The Health of the Nation targets are to reduce the average percentage of food energy derived from saturated fats by at least 35% (to no more than 11% of food energy) and from total fat by at least 12% (to no more than 35% of total food energy) by the year 2005; and to reduce the proportion of men and women aged 16-64 who are obese by at least 25% (to no more than 6%) and 33% (to no more than 8%) respectively by the year 2005 (Fact Sheets 1995).

#### **Research Questions**

Nutrition studies can be divided into 2 major groups : studies on nutrient intake, and studies on obesity and its management. Though we acknowledge that obesity in young people is an important area of research, studies that have focused exclusively on obese young people have not been included as the scope of this document is primary prevention only.

Nutrition research has mainly focused on the relationship between nutrition and health, the epidemiology of nutrient intake, and the effect of nutrition education on healthy eating patterns.

**Table 3** shows the numbers/percentages of different types of nutrition-related studies in young people. Studies reporting an outcome evaluation of a healthy eating promotion programme formed 10% of the total before 1990 and 13% from 1990 onwards.

**Table 3** Number/percentage of types of health promotion studies in young people in the area of healthy eating, before 1990 as compared to the period from 1990 onwards

|                     | <1990      | ≥1990      | Total      |
|---------------------|------------|------------|------------|
| Descriptive studies | 92 (90%)   | 167 (87%)  | 259 (88%)  |
| Outcome evaluations | 10 (10%)   | 26 (13%)   | 36 (12%)   |
| Total               | 102 (100%) | 193 (100%) | 295 (100%) |

## ***Descriptive Studies***

A lot of the descriptive research focused on the extent to which nutrition affects health. Nutritional disorders, very often the result of inappropriate diet, are responsible for numerous cancers and cardiovascular diseases, the two main causes of morbidity and mortality in industrialised countries (Andrien 1994; Committee on Diet and Health *et al.* 1989). However, no universally accepted convention exists on which foods should be included in health advice on fruit and vegetables (Domel *et al.* 1993). When different definitions are used, misleading conclusions may be drawn about current levels of fruit and vegetable consumption. Simply recommending 'more' gives consumers no indication of how much is reasonable and allows complacency about present levels of consumption (Williams 1995). The Nutrition Task Force in England noted that even where consumers were aware of the main healthy eating messages, they were often unsure about how to translate these into appropriate food choices (Anderson *et al.* 1993). A major step in attaining healthy eating behaviour is therefore the delivery of pertinent nutrition and food-use information.

The last National Survey in the UK on nutrition in schoolchildren reported data from a representative sample of 10-11 and 14-15 year olds : the average amount of energy derived from fat was 37-39% for the different age and gender groups, which is in excess of the recommended average of 35%; milk contributed between 9 and 12% of total fat intake (Department of Health 1991; Wenlock *et al.* 1986). It should be noted that this survey was carried out in 1983 before the rise in popularity of reduced-fat dairy products; the current picture is likely to be somewhat changed. The source of the lunchtime meal did not influence energy and nutrient intake to any great extent with exception of older children, especially young women, selecting low nutrient foods (Department of Health 1991; Wenlock *et al.* 1986).

More recent UK data on what young people eat and the nutritional implications are limited. Crawley (1993) carried out a cohort study of almost 5,000 16-17 year olds which indicated that the intake of fat and extrinsic sugars exceeds recent recommended levels (Department of Health 1991); intake of non-starch polysaccharides, intrinsic sugars, milk sugars and starch were considerably lower than recommended with only 25% of young men and 10% of young women reaching the targets. The main food groups contributing energy as fat were meat and meat products (23%), fats and oils (18%); cereal and cereal products (18%); milk and milk products (12%). The major sources of sugars were sugar and confectionery (17%); cereals and cereal products (24%); and beverages (22%). Low intake of iron and calcium have been reported in several studies (Bull 1985; Caroline Walker Trust 1992; DH 1991; Nelson 1994; Wenlock *et al.* 1986).

The factors affecting eating behaviour are complex and interrelated. According to authors such as Coles and Turner (1992) and Mayall (1991) there is a need to study reasons for food choices.

Since the 1970s, there has been a move away from conventional foods and meal patterns towards informal styles of eating, the consumption of snacks rather than complete meals, and the introduction of new foods influenced by holidays abroad as well as the growing ethnic population in the UK. Other social trends have had their influence on food- and meal patterns such as : the increase in fridge-, freezer- and microwave-ownership; the proliferation of easy to prepare 'convenience' food; the increased number of 'working mothers'; and the increased popularity of leisure activities at different times of the day (King 1981; National Dairy Council, NDC, 1995). In terms of meal patterns, recent surveys have shown that skipping of breakfast and consumption of snack foods is more likely in older children (Balding 1988; Bull 1985; NDC 1982; 1990). However, the latter is not necessarily detrimental to health provided snack foods of high nutrient density are consumed (Bull 1988). Excessive television viewing has been linked to obesity, increased between-meal snacking, and consumption of low nutrient-dense foods (Clancy-Hepburn *et al.* 1972; Cotugna 1988; Dietz and Gortmaker 1985; Gussow 1972).

Mass media have been identified as a major source of nutrition and health information (Goldberg 1992; Lambert-Lagace 1983; Thomsen *et al.* 1988). Thomsen *et al.* (1988) found that older 'adolescents' were more likely than younger ones to report receiving nutrition information from mass media rather than from health professionals and significant others. College students in the USA identified magazines as primary sources of nutrition information (Novascone and Hertzler 1986). The impact of advertising for foods, many rich in fat and sugar, specifically targeted towards young people is difficult to assess. In a study of 15 year olds by Hamblin (1980), young women seemed more easily influenced than young men; on average 50% claimed to wanted to try food they had seen advertised on television.

Food may be used as a way of identifying with peers, and pressure from peer groups may be strong (Bull 1988). Older children may be more influenced by external and social pressures than younger children who may be more likely to take account of parental attitudes (NDC 1995).

Young people are often very aware of their own self- and body-image, but their perception can be extremely inaccurate (Kronl 1989). Fear of being overweight and associated inappropriate eating behaviour is common in young people (Fisher *et al.* 1991; Moore 1988; Moses *et al.* 1989; Szmukler 1983). Prevalence data on obesity suggest that 9% of young women and 7% of young men can be classified as overweight or obese (Braddon *et al.* 1986; Peckham *et al.* 1983). However, a survey in 18,407 11-16 year olds by Balding (1988) found that about one third of the young men and half of the young women said that they had tried to lose or avoid gaining weight; by the age of 15, the proportion of women concerned with weight had increased to two thirds of the sample of which the majority had resorted to dieting. Five percent of the 14-15 year old women assessed in the National Survey on nutrition in schools in the UK (Department of Health 1991); and 6% of 15-18 year old women in a survey of a representative sample of 15-25 year olds claimed to be on a

slimming diet (Bull 1985). Similar results have been reported by other authors in a variety of study populations (Moses *et al.* 1989; Serdula *et al.* 1993; Wardle and Marsland 1990). A study by Hill *et al.* (1992) indicated that even some nine year-old girls reported frequent bouts of dieting. Young men are more likely to try to lose weight by physical activity rather than dieting; and one in four young men actually wish to gain weight (Wardle and Marsland 1990).

A number of studies have reported on the coverage of nutrition and dieting issues in women's magazines (Andersen and DiDomenico 1992; Guillen and Barr 1994; Hudnall 1982; Parham *et al.* 1982; Wiseman *et al.* 1992). Guillen and Barr (1994) characterised the nutrition and fitness messages presented between 1970-1990 in *Just Seventeen*, a magazine for young women, with the aim to assess which body shape was portrayed as desirable; and whether the nutrition and fitness messages had changed over time. *Just Seventeen* magazine, in circulation since 1944, is referred to as "the best friend" of young women and has a total circulation of 1.75 million. It therefore has the potential to influence a substantial proportion of the young female population. The results of the study indicated that both nutrition and fitness-related coverage emphasised weight loss and physical appearance; half the major nutrition-related articles presented a weight-loss plan; the primary reasons presented for following a nutrition or fitness plan were to lose weight and become more attractive. Nutrition coverage did not change over time, whereas fitness coverage increased; the ratio of nutrition to fitness coverage changed from 10:1 in 1970 to 0.75:1 in 1990. Models' body shapes were less curvaceous than those in magazines for adult women, and the hip:waist ratio decreased over time resulting in the shape of models becoming more linear. It was concluded that although the implications of these results can not be directly inferred, *Just Seventeen* contributes to the cultural milieu in which thinness is an expectation for women (Garner *et al.* 1980; Guillen and Barr 1994).

Though the etiology of eating disorders is multi-factorial, current standards of physical attractiveness, which the mass media influence, have been implicated as contributing to the recent increase in their prevalence (Andersen and DiDomenico 1992; Silverstein and Perdue 1988).

### ***Health Promotion Interventions***

Most research is related to assessing the effects of nutrition education on healthy eating in a variety of settings and target groups. One of the most important meta-analyses of nutrition education, based on previous meta-analyses and the results from 303 additional studies, demonstrates that nutrition education is effective in changing knowledge, attitudes and behaviours (Johnson and Johnson 1985). In a review of 10 recent publications on the effect of nutrition education, Andrien (1994) concludes that nutrition education works, but community-based and social marketing approaches seem to be most promising for behaviour change.



Programmes specifically targeted at young people have mainly, if not exclusively, been school-based. They show a wide variety of content, approaches, target groups and outcomes. Traditionally, nutrition education is aimed at increasing knowledge about nutrition, which should lead to a change in attitude and ultimately to improved eating behaviour and nutritional status. Contento *et al.* (1992) reviewed school-based nutrition education and concludes that its effect on cognitive outcomes was positive; its effect on attitudes was generally positive but inconsistent; whereas its effect on behaviours was minimal for general programmes, but positive though inconsistent, for more targeted behavioural programmes.

Positive effects on nutrition knowledge and/or some food practices have been reported by those studies employing older children to teach nutrition issues to younger children (Anliker *et al.* 1993; Hollund 1990; Rayburn and Collins 1984; Shaskan 1977; Stroh and Price 1989). Hollund (1990) reported on a 'Learning by Teaching' programme involving 14 year olds teaching 10 year olds; the intervention group showed a decrease in overall sugar consumption though not in fat intake, as compared with a control group, with differences most pronounced at 2 months follow-up. Combining education with cardiovascular risk screening has been used in various studies to enhance the effectiveness of a classroom curriculum in achieving health behaviour modification. The screening is intended to act as a motivational and norm-creating component, as well as to provide important physiological feed-back. These programmes have resulted in varying degrees of success (American Health Foundation Monograph 1989; Committee on Nutrition 1989; Cowell *et al.* 1989; Kilen and Robinson 1989; Resnicow *et al.* 1989; Rohwer *et al.* 1992; Weinberg *et al.* 1988). Devine *et al.* (1992) reported a greater effect of a teacher-led nutrition programme integrated into the existing curriculum in schools which had a higher proportion of low-income students. These findings are consistent with syntheses of the US Expanded Food and Nutrition Education Programme (EFNEP) which started in 1968 and was regularly evaluated; this study reports greatest success in the most disadvantaged participants (Chipman and Kendall 1989).

Brinberg and Axelson (1990) reported on a study in university students comparing the impact of messages tailored to the specific dietary practices, preferences and perceptions of the individual, with that of a general brochure targeted to the population at large. They found that a marginal increase in the consumption of dietary fibre was reported by the students receiving tailored messages as compared to the group receiving the general brochure; in addition, individuals who received tailored messages were better able to recall nutrition information as compared to the general information group.

Some studies have shown that improvements in food practices are not necessarily sustained in the long term. A nutrition education project for high school students including informative instruction, participatory classroom activities, personal goal-setting, feed-back, peer support and parental involvement, was reported to be effective in decreasing

consumption of salty snacks and increasing consumption of fresh fruit snacks. However these changes were not maintained across the summer holidays into the next academic year (Coates *et al.* 1985). These results stress the importance of including long term follow-up in evaluations, as well as booster sessions, particularly with a view to cost-effectiveness assessments.

Because of their growing independence and the fact that they are unlikely to be greatly motivated by the threats of deterioration in long-term health, teenagers may not be very receptive to nutrition interventions by parents, teachers or health professionals (NDC 1995; Story 1990). Some research has indicated that involving parents in youth-directed nutrition interventions may result in an improvement in knowledge about diet and heart disease; attitudes of efficacy; food choice intentions; parent-child communication; child involvement in food or nutrition-related issues at home; and foods present in the home (Crockett *et al.* 1989). Nevertheless, young people are most susceptible to peer-group pressure; to a sense of 'belonging' to a group; and to the influence of the entertainment media; they are also concerned with their appearance (NDC 1995; Story 1990). If these facts are taken into account when developing nutrition education, then a greater degree of success may be achieved in changing eating behaviour.

More and more school-based programmes are also aimed at changing the environment or the social norms that affect nutrition-related behaviours. Several studies reported on comprehensive programmes combining nutrition education and modification of catering practices (Lidell *et al.* 1992; Shannon and Chen 1988; van Doorne *et al.* 1994). A three-year primary school-based intervention in 12 Pennsylvania school districts showed a large increase in knowledge, though a less definite impact on attitudes and self-reported eating behaviour; both intervention and control groups also showed changes over time independent of the programme (Shannon and Chen 1988). A study of pupils in 35 primary and secondary schools in Belgium included actions towards food stores in the environment of the schools. The results reported by van Doorne *et al.* (1994) indicated an improvement in the nutritional value of food and beverages in many of the participating schools; and an improvement in the participation of pupils and parents in food topics concerning the school. Two years after the intervention, all schools continued at least with one action of the programme and half the schools developed new nutrition-related activities. Lidell *et al.* (1992) reported positive results in terms of eating habits and catering practices at a centre for higher education.

The Minnesota Heart Health Program is a multiple intervention including components such as school-based behavioural education and community-wide health promotion strategies. Kelder *et al.* (1995) reported on the long-term outcomes in healthy eating behaviours of school-aged young people: There were modest but lasting improvements in knowledge, healthy food choices and food salting practices (most notable in women).

Though the methodological quality of nutrition studies has generally increased over the past decade (Contento *et al.* 1992), the main difficulties are defining independent and dependent variables precisely, and controlling for confounding variables (Andrien 1994). For instance, for many studies, it is difficult to distinguish the effects of the intervention from the general trends of diet in society. The results of the nutrition education component of the North Karelia Project, a community-based intervention to reduce risk factors for cardiovascular disease, indicated: a reduced saturated fat intake after 5 years as compared to a control community. A reduction in fat intake was sustained after 10 years, but was similar to that in the comparison community indicating a general trend rather than an intervention effect. A reduction in serum cholesterol levels was noted in men but not in women. The fact that changes were more pronounced after 5 years than after 10 years indicated a diffusion of new behaviours through the whole of the Finnish population (Pietinen *et al.* 1988).

Andrien (1994) stressed the importance of collecting information on the processes involved in nutrition education strategies, as well as on the outcomes, with the aim to establish not only whether a programme works but also how.

## 4. Physical Activity

The causal link between physical activity and positive health during adult life is well-documented. Increased physical activity levels have been associated with reduced morbidity and mortality from heart disease, some cancers, diabetes, obesity, and musculo-skeletal disorders (Blair 1993; Fox 1995). Several meta-analyses have also indicated a related reduction in anxiety and depression, and an increase in self-esteem (Fox 1995; Gruber 1986; North *et al.* 1990; Petruzzello *et al.* 1991). The pattern for habitual physical activity is most likely to be initiated during childhood (Ferguson *et al.* 1989). Children and young people, however, seem to have low levels of regular activity and many seldom experience the intensity and duration of physical activity associated with beneficial health outcomes in adult life; this trend is more marked in young women than in young men (Armstrong 1995b; DeMarco and Sidney 1989).

The Health of the Young Nation strategy does not include specific targets for physical activity, but physical education has been made mandatory since 1992 for all pupils of compulsory school-age with the aim to provide a sound introduction to physical activity and to foster participation in later years (Fact Sheets 1995).

### **Research Questions**

The field of physical activity promotion has grown rapidly over the past 10 years (Fox 1995). Research efforts have largely been directed towards the development of valid measures of physical activity and establishing the causal links between exercise and health. **Table 4** shows the types of health promotion studies in young people in the area of physical activity. Studies reporting an outcome evaluation of a physical activity promoting programme formed 10% of the total of studies before 1990 and increased to 14% of studies from 1990 onwards.

**Table 4** Number/percentage of types of health promotion studies in young people in the area of physical activity, before 1990 as compared to the period from 1990 onwards

|                     | <1990      | ≥1990      | Total      |
|---------------------|------------|------------|------------|
| Descriptive studies | 150 (90%)  | 173 (86%)  | 323 (88%)  |
| Outcome evaluations | 17 (10%)   | 28 (14%)   | 45 (12%)   |
| Total               | 167 (100%) | 201 (100%) | 368 (100%) |

## ***Descriptive Studies***

The case for physical activity has been built almost entirely on the middle-aged population, the relationship between activity and health in young people is less well-established. This is partly because the epidemiological approach is inappropriate for young people as morbidity and mortality are not viable endpoints, and partly because of the small number of well-conducted studies (Fox 1995).

Armstrong *et al.* (1991) argue that the aerobic fitness of young people has not deteriorated over the last 50 years. The well-publicised belief that it has, stems from a misunderstanding of the concept of aerobic fitness and its assessment (Armstrong and Welsman 1994; Fox 1995). In addition, there is a wide range of individual differences in activity levels within any population, hence mean activity levels may be of little value in the determination of the effect of health promotion strategies (Fox 1995). Many investigators have also expressed concerns over the accuracy of self-reported physical activity. Although a number of recommendations for improving the validity of self-reports have been made, the need for new, rigorous measures has been widely acknowledged (Cale 1994).

The major rationale for promoting physical activity in young people is to establish patterns of regular activity that can be maintained throughout life (Engstrom 1986; Perry *et al.* 1990; Sallis *et al.* 1993). The accepted definition of physical activity is "any bodily movement produced by skeletal muscles that results in energy expenditure"; exercise is one element of physical activity that has been described as "planned, structured and repetitive bodily movement done to improve or maintain one or more components of physical fitness" (Caspersen *et al.* 1985). Physical activity seems to decline dramatically with age, resulting in an almost 50% decrease between the ages 6 and 16, and a further decline during adulthood, with men being more physically active than women (Sallis *et al.* 1993). There is some evidence indicating that adult physical activity patterns have their origins in exercise behaviour established during childhood. Based on data collected of individuals at the age of 13 and again at 36 years of age, Kuh and Cooper (1992) reported that characteristics which were positive predictors of high engagement in sports at 36 years included above average ability at school games at 13 years. These findings were supported by the Allied Dunbar National Survey involving a representative sample of 6,000 adults in England. Twenty-five percent of those active when aged 14 to 19 years were classified as very active adults, whereas only 2% of active adults were inactive at an earlier age; 30% of the sample were consistently in the same activity band at ages 14 to 19, 20 to 24 and their present age (Activity and Health Research 1992). Physical activity is influenced by a variety of interacting factors; different variables may be important for different groups or at different times (Sallis *et al.* 1993). There is a need to understand these factors to guide the development of effective activity promoting interventions.

Though it is frequently assumed that children have an innate interest in physical activity, children often adopt sedentary lifestyles. Consequently, educators need to identify factors that stimulate interest in lifetime exercise habits (DeMarco and Sidney 1989). Regular exercise habits depend on a variety of factors, including the reinforcing consequences of exercise and non-exercise behaviours (Vara and Epstein 1993). The most frequently studied variable is television viewing. The evidence that the contemporary culture of television, video and computer games has had detrimental effects upon the physical activity of children is equivocal (Armstrong 1995a; Tucker 1986). However, though the 24 hours of television per week watched by the average child has not been shown to be associated with decreased levels of physical activity, viewing hours clearly reduce the opportunity to be active (Sallis *et al.* 1993). Studies suggest that providing individuals with control over exercise parameters may influence adherence provided they have already chosen to be active rather than sedentary (Epstein *et al.* 1982, 1985). Equally important to assess is the extent to which control influences the choice to exercise rather than to be sedentary. Vara and Epstein (1993) found that exercise was not chosen over sedentary activities if individuals had a choice between multiple exercise options and one equally accessible sedentary activity, even when these activities were equally liked. Interventions to increase activity may therefore have to reduce access to competing sedentary behaviours in order to modify exercise levels successfully (Epstein *et al.* 1991).

Barriers to participation in physical activity are not only practical but also psychological: lack of time was most frequently cited; lack of confidence and lack of perceived ability were cited more frequently than lack of money (Kincey *et al.* 1993). Positive self-esteem seems correlated with higher motivation, and less barriers to participate (Kincey *et al.* 1993). This implies that the uptake of physical activity can be increased only if psychological issues, as well as practical barriers such as money and availability, are addressed.

The predominant motivation for participation in physical activity is enjoyment rather than health, fitness or relaxation (Anderssen 1993; Kincey *et al.* 1993; Sallis *et al.* 1993). A frequently cited reason for participation in organised sport is affiliation, i.e. the notion of being part of a team and being with friends (Weiss and Petlichkoff 1989). Personality characteristics such as achievement motivation, stress tolerance, social adequacy, movement satisfaction, self-confidence, and independence are either weakly or not at all associated with participation (Sallis *et al.* 1993). Only specific beliefs about one's personal capability of engaging in physical activity and about exercise intentions have been strongly associated with physical activity in young people (Sallis *et al.* 1993). Young people who see themselves as more competent in physical education classes tend to perceive these classes as more positive (Anderssen 1993). This may indicate that physical education does not offer equal opportunities for all young people. High levels of perceived success, personal control, and companionship were found to enhance future expectations of success and enjoyment in physical education and

encouragement to participate in physical activity outside of school (Duncan 1993). Self-efficacy does not emerge as an important predictor of exercise behaviour in younger children. However, this may be due to a deficiency in the assessment of self-efficacy in this age group rather than a lack of effect (Stucky-Ropp and DiLorenzo 1993).

Young women report less physical activity during leisure time and fewer young women than young men are members of sports clubs. Young women have less self-assessed competence in physical education classes than young men (Anderssen 1993; Godin and Shephard 1986). The gender differential in physical activity has been explained in terms of biological differences, differences in motor skills and in socialisation (Sallis *et al.* 1993).

Studies indicate that young women have significantly more positive attitudes towards physical activity than young men, mainly due to their strong feelings for the aesthetic and social components of activity. However, these are often poorly represented in many secondary school physical education programmes, which might explain why young women's positive attitudes are not predictive of their involvement in physical education at school (Birtwistle and Brodie 1991). Several aspects of school programmes at the elementary and secondary level have been identified as contributing to decreased attendance of young women in physical education : gender-integrated physical education classes seem to be based more on needs and values of young men than young women (Anderssen 1993; Lirgg 1993); young women prefer fitness and aerobic activities and skills training which are usually not available on a year-round basis; schools often lack adequate athletics facilities for both genders with young women receiving less than equal treatment in allocation of facilities; more sports programmes are available in schools for young men than for young women; activities for young men generally receive more funding than those for young women (DeMarco and Sidney 1989).

Because exercise and sport have been stereotyped as masculine, young women get less encouragement than young men to stay physically active (Armstrong 1995a; Anderssen and Wold 1992; DeMarco and Sidney 1989). Women's games such as hockey and netball, appear to carry less prestige than men's games such as rugby, football and cricket (Armstrong 1995a); the latter also receive wider media attention providing young men with numerous sporting role models (Thirlaway and Benton 1993).

In a study examining the role of sports as a social status determinant for primary school children, Chase and Dummer (1992) found that boys reported sports to be the most important determinant of personal and male popularity and appearance the most important determinant of female popularity; whereas girls reported appearance to be the most important determinant of personal, male and female popularity. Similar gender differences in the status of physical activity exist among secondary school students : 'being a good athlete' was the most

important criterion for determining male social status among peers, but not for female social status (Goldberg and Chandler 1989; Kane 1988; Thirer and Wright 1985). The above factors may reinforce the relative unimportance of physical activity in the lives of women. Physical educators should take a more reflective view of the organisation and presentation of their programmes in order to challenge the gender ideologies reflected in many physical education curricula (Armstrong 1995a).

Another issue is the predominance of competitive team sports within schools, which with the exception of football, do not seem to transfer to out-of-school participation (Dowling 1987). Individual pursuits such as swimming and cycling are more popular and more likely to be continued in later life (National Forum for Coronary Heart Disease Prevention). In fact, many children are discouraged from participating in competitive games through lack of success due to varying physical abilities. Competitive team games are especially of little interest to the majority of young women (Armstrong 1995a). However, the revised proposals for physical education in the UK's National Curriculum emphasise the importance of competitive team games to such an extent that they dominate the physical education programme for 5 to 16 year olds; and two competitive games could be the only physical education offered to 14 to 16 year olds. It appears that there is little understanding among politicians of the need for a balanced curriculum on physical education and the promotion of physical activities which are likely to be sustained into adult life. Competition and athletic excellence are not necessary for the promotion of health. Data on relative popularity of sports should be used when schools make decisions about which exercise choices to provide, as this may have an important effect on participation rates (Kincey *et al.* 1993). Activities on offer should suit young women as well as young men, and should take into account the attitudes and beliefs held by young people of all physical abilities (Gentle *et al.* 1994).

The focus of physical education should be on the development of a repertoire of motor skills so that young people are more likely to achieve success and feel confident enough in their own abilities to want to pursue more active lifestyles. Early experiences must be enjoyable to foster future participation. The provision of a high activity content should be an important component of most physical education lessons, but the prime objective should be the achievement of 'activity independence', i.e. young people need to understand the principles underlying healthy activity and be taught how to become informed decision-makers who can plan and implement individual physical activity programmes (Armstrong 1995a; DeMarco and Sidney 1989; Ferguson *et al.* 1989).

Significant others have an important impact in promoting physical activity in young people. Both the physical activity levels of parents and peers, and the parental- and peer-support for physical activity seem to influence reported activity levels in young people (Anderssen and Wold 1992; Butcher 1983; Duncan 1993; Godin and Shephard 1986). Several studies indicate these factors are being more influential for young women than for



young men (Anderssen and Wold 1992; Gotlieb and Chen 1985; Gregson and Colley 1986; Reynolds *et al.* 1990). The influence of parents also seems greater for younger rather than older children (Sallis *et al.* 1993).

An important limiting factor in parents' encouragement of their children's active lifestyles seems to be their concern about children's safety. This has resulted in a steady decline in independent mobility, which is more pronounced for young women than for young men. Less than 5% of British as opposed to 70% of Dutch schoolchildren cycle to school (Fox 1995), though 90% of British children own bicycles (National Forum for Coronary Heart Disease Prevention). Tight (1987) found higher rates of bicycle use in southern towns than in northern towns and regional variations in the number of secondary school pupils walking to school, ranging from, for example, 85% in Bradford to 47% in Reading. Towner *et al.* (1994) found that more children seem to walk home than to school and that there is less travel by car on the way home. If parents are to be encouraged to increase physical activity in their children, the community has to provide adequate, safe, clean walkways; cycle paths; and play areas (Armstrong 1995a).

### ***Health Promotion Interventions***

There have been several attempts to increase physical activity patterns of young people, though few have been evaluated (Sallis *et al.* 1993; Thirlaway and Benton 1993).

Schools are considered to be the most promising setting for attaining a public health gain through physical activity because of their convenient access to young people; their existing infrastructure; and the fact that long-term cost-effective programmes can be established both within and outside the curriculum (Fox 1995). Keays and Allison (1995) undertook an extensive literature search to identify formally evaluated school-based physical activity interventions. They found 24 studies, the vast majority of which were carried out in primary schools. Secondary school programmes based around exercise-related knowledge and skills seem to have some effect on attitudes and physical activity behaviour (Brynteson and Adams 1993; Cuddihy and Corbin 1995; Fardy *et al.* 1993.; Slava *et al.* 1984). A study of university students by Brynteson and Adams (1993) suggested that teaching students why they should exercise, and assessing what their exercise needs are and how they can be met, has a greater impact on physical activity than a compulsory activity-based programme.

Though schools are considered the most promising setting, young people obtain the majority of their physical activity in organised activities within the community setting. Again, little is known about the effectiveness of programmes based on the promotion of sport and leisure activities throughout community, youth and leisure centres (Fox 1995). No studies have been conducted on the effects of improved availability and quality of sport and leisure facilities including green areas and other community

resources (Sallis *et al.* 1993). Facilities need to be made available not only at reasonable cost, but also at times when young people can use them, such as during weekends and school holidays; they must be attractive to young people and not designed exclusively for the use of adult-sized people (Armstrong 1995a).

The rationale for family-based physical activity programmes is that family variables which can be changed do influence activity patterns, and that most children remain in the family environment for many years which holds promise for long-term effectiveness. Interventions using the family as a base seem to have mixed results, although in general they have had an impact on children with low activity and fitness, and on obese young people (Epstein *et al.* 1990). However, many potential mechanisms of family influence on young people's activity have not been targeted and/or evaluated in family-based programmes. The journey to school, as indicated above, carries much potential to increase children's activity if the issue of safety is addressed. More research on patterns of travel to school and barriers to walking and cycling should be carried out and used to design appropriate interventions (National Forum for Coronary Heart Disease Prevention).

Many physical activity interventions -though few have been evaluated in well-designed trials- have targeted the adult population through the workplace and primary health care settings (Fox 1995). No programmes however, have been documented that address young people within the primary health care context. This setting may be particularly valuable as regards with increasing activity in specific target groups, like overweight, depressed or physically disabled young people, as these groups are likely to use primary care services (Fox 1995). Physical activity counselling is well accepted by paediatricians in the USA as a component of overall health maintenance, but there is no consensus for improving practice in this area, neither has the effectiveness of this type of advice been evaluated (Sallis *et al.* 1993).

For some interventions, it would seem more cost-effective to focus on specific groups rather than on young people in general. Therefore, inactive groups need to be identified and their activity patterns and activity-related psychology contrasted with those of active groups (Fox 1995).

## 5. Sexual Health

Young people's sexual behaviour is a focus of policy concern in the UK for a number of reasons, the two main ones being the high rate of teenage pregnancy and the risk of contracting sexually transmitted diseases (STDs), including HIV/AIDS.

Conception rate for women aged 13-15 was 9.3 per 1,000 in 1991, which is one of the highest in Europe; it equates with around 8,000 under-16 year olds becoming pregnant each year, half of whom have their pregnancy terminated (Fact Sheets 1995). In 1990, the teenage birth-rate in England and Wales was 31.9 per 1,000 women aged 15-19; between 1980 and 1983 the rate had declined from 30.4 to 26.9, but has been rising since (Woodroffe *et al.* 1993).

HIV-infection in young people in Europe is most closely linked to injecting drug use and sex between men, but heterosexual transmission is rising (Aggleton 1992). In the UK, 5% of known cases of HIV-infection up to 1994 occurred in people aged 19 or under, 16% among 20-24 year olds, and 25% among 25-29 year olds; there are large regional differences with most diagnosed HIV- and AIDS-cases (79%) in the North Thames Region (HEA 1994).

Two Health of the Young Nation targets are relevant to young people's sexual health : reducing the incidence of gonorrhoea by at least 20% in over 15 year olds by 1995, and reducing the rate of conceptions by at least 50% in women under 16 by the year 2000. While the first target was achieved by 1992, the second one seems much more difficult to attain (Committee on Health Promotion 1995).

### ***Research Questions***

Most of the research literature in this area has focused on the factors associated with young people's risk-taking behaviour, the reasons why they engage in it, and what can be done to change it. Unlike some of the other Health of the Nation issues, sex education has been a routine part of the school curriculum with the underlying assumption that teaching about sexual risk-taking. However, there has been almost no systematic evaluation of the effectiveness of curriculum-based sex education. Experimental programmes have also been introduced into schools and other settings, and most of these have been subject to at least some evaluation. **Table 5** shows types of sexual health promotion studies in young people as identified from BiblioMap, the EPI-Centre bibliographic database. Studies reporting on an outcome evaluation formed 15% of the total number of studies before 1990 and 26% from 1990 onwards.

**Table 5** Number/percentage of types of sexual health promotion studies in young people, before 1990 as compared to the period from 1990 onwards

|                     | <1990      | ≥1990      | Total      |
|---------------------|------------|------------|------------|
| Descriptive studies | 205 (85%)  | 241 (74%)  | 446 (79%)  |
| Outcome evaluations | 36 (15%)   | 86 (26%)   | 122 (21%)  |
| Total               | 241 (100%) | 327 (100%) | 568 (100%) |

**Note**

This chapter includes sections on 'What do we know?' and 'Research gaps' because it is based on a systematic review which has taken into account the methodological quality of intervention evaluations with the aim to identify the subgroup of 'sound' studies from which reliable conclusions about effectiveness can be drawn (Peersman *et al.* 1996).

**Descriptive Studies**

In the UK, The National Survey of Sexual Attitudes and Lifestyles found a strong trend for age at first intercourse to decline with cohort age for both men and women. The youngest cohort in this Survey -born between 1966 and 1975- had a median age for first intercourse of 17, and the first sexual experience occurred at a median age of 14 for women and 13 for men. Amongst women and men of all ages, 34% and 56%, respectively, reported having had some sexual experience before the age of 15. The time period between first sexual experience and first intercourse is reducing over time, more markedly for women than for men (Wellings *et al.* 1994). The implication of these trends is that an increasing proportion of teenagers have intercourse before the age of 16. Of relevance to sex educators is the fact that 59% of women and 24% of men who had intercourse before the age of 16, felt in retrospect that this had been too early (Wellings *et al.* 1994, see also Curtis *et al.* 1989). A gender difference was reflected in the reasons given for having intercourse at that age : women were most likely to say that the main factor was that they were in love, and men were most likely to cite curiosity; 11% of both men and women said they got carried away; 4% of men and 7% of women said they were drunk at the time (Wellings *et al.* 1994). The Survey also found that younger cohorts show an increasing tendency to report homosexual experiences : 5% of men and 2% of women aged 16-24 reported in face-to-face interviews some homosexual experience (Wellings *et al.* 1994).

Some studies show that young people are still ignorant of basic physiological facts concerning sexuality, reproduction, contraception and HIV-infection risks (Balding 1994; Community Youth Project; MacKintosh and Eadie 1993; Mellanby *et al.* 1991; Prendergast 1994; Weinman *et al.*

1992). Other studies have demonstrated that young people's knowledge about AIDS has increased (Fife-Shaw and Breakwell 1992; HEA 1994), but less so for other STDs (Dusenbury *et al.* 1991; Mellanby *et al.* 1992). As with other areas of health education, the assumption that providing information will lead to behaviour change and minimisation of risk has dominated the field. However, those most knowledgeable are not necessarily those who take fewest risks; some studies even show an inverse relationship (Weinman *et al.* 1992).

There also seems to be a weak relationship between knowledge about sexual health risks and perceived vulnerability. Those young people who know most about pregnancy and STD-risks do not necessarily regard themselves as personally vulnerable (Abraham *et al.* 1991; Ford 1992; Segest *et al.* 1991), nor do they necessarily behave in low risk ways (Ford 1992; Pligt and Richard 1994). Perceived risk seems to be relatively unimportant as a determinant of actual safer sex behaviour. Observational data suggest that an intervention which consists of asking young people to think about how they would feel after having unprotected sex, may be an effective way of persuading them to use condoms (Pligt and Richard 1994). Personalised anticipated regret seems a stronger motivator than the generalised fear arousal which has been the basis of many HIV-prevention media campaigns (Pligt and Richard 1994). Relatively little work has looked at the *meanings* of sexual experience for young men and young women, or at the personal contexts in which risk-taking behaviours such as unprotected sex may occur (Holland *et al.* 1990, 1991).

Use of contraception at first intercourse is one indicator of risk. The National Survey of Sexual Attitudes and Lifestyles in the UK found that non-use of contraception at first intercourse has declined steadily over recent decades; fewer than a quarter of women and a third of men aged 16-24 reported it. However, nearly half the women and more than half of the men who had intercourse before the age of 16, said they had not used contraception (Wellings *et al.* 1994). Rates of condom use by young people have generally increased since the early 1980s, but reported rates of *consistent* condom use by sexually active young people have remained low (Hingson and Strunin 1992; Society for Adolescent Medicine 1994). On the whole, the evidence suggests that condoms are seen by young people as a way to prevent pregnancy rather than to reduce the risk of contracting HIV (HEA 1991). Many young people start using condoms as first contraception, but progress to oral contraception when a relationship becomes established (Boyer and Kegeles 1991; Frankham and Stronach 1990). A conflict between the use of condoms to prevent STDs and oral contraception to prevent pregnancy, is identified in many surveys and interventions studies as a substantial unresolved dilemma in sexual health promotion for young people. A qualitative study undertaken by the Family Planning Association of general practitioners and nurses in 60 General Practices in England and Wales found that many professionals identified a need for information and training to deal with sexual health promotion and family planning needs of young people, including those under 16. None of the Practices which took part in the study provided

special services for young people. While most said they were prepared to offer advice on safer sex to young people, few did so in practice (Institute of Population Studies 1993). None of the young people in a study of family planning clinics by Frankham and Stronach (1990) had been given advice on condom use for safer sex; all professional advice had been to use the pill as 'the safest way'. In the Netherlands, the 'double dutch' method -i.e. the use of both condom and oral contraceptives at the same time- has been recommended (Editorial 1994); a survey in 1989 found that a remarkable 13% of young people used this method (Barnardos 1992).

Following the recent reorganisation of personal and social education, 54% of primary and 82% of secondary schools in the UK reported the existence of a written sex education policy, and 24% and 13%, respectively, said they were preparing one. However, 12% of primary and 1% of secondary schools had a written policy *against* teaching sex education (HEA 1993). Twenty-one percent of schools have written HIV/AIDS policies (McEwan *et al.* 1994). A survey in 1993 investigating the provision of HIV/AIDS education in further education (16-19 year olds) showed that provision of HIV/AIDS education is patchy with most students receiving none (Turner and Hill 1993). What goes on under the heading of school-based sex education remains relatively unknown, and few studies have looked specifically at the *content* of sex education programmes (Kenney *et al.* 1989). One way of informing young people about sex and reproduction is within the context of general health education. Given the uncertainty about what UK schools are currently doing in the areas of both health- and sex-education, it is impossible to judge the extent to which any sex and/or HIV/AIDS education is happening as part of the school curriculum.

A fundamental point which emerges from much of the literature is the confusion between the different aims of sex education : 'Sex education may be targeted at the prevention of unwanted pregnancy and of STDs; it may also be designed to promote a positive attitude towards sexuality; or to provide young people with a specific moral framework, or with the knowledge needed to work out their own belief systems' (Evans *et al.* 1994:11). Addressing the prevention of unintended pregnancy and STDs concurrently, calls for a broad-based sexual health education in which coherent and unambiguous messages are presented.

A study in 1989 found that only 44% of secondary schools ever consulted pupils about their self-defined health education needs (HEA 1989). This suggests a substantial gap between what educators think is important to provide and what young people want to know. Some studies of young people's needs and experiences in the area of sexual health education show a considerable amount of dissatisfaction with school-provided sex education (HEA 1994; National AIDS Trust 1992), particularly in the area of relationships, practical information and access to resources; and around issues of the timing of sex education -too little and too late- (Woodcock *et al.* 1992). While educators stress anatomical and moral issues, teenagers tend to be more interested in emotional and political

issues including sexual enjoyment; oral sex; guilt and fear about sex; love; sexual offenses; prostitution; and rape (Evans *et al.* 1994; Schinke 1984). Discussing and acting on sexual health issues are still infused with emotional difficulty and embarrassment for many young people (Phelps *et al.* 1992; Wight 1992). Buying and carrying condoms pose special problems (Griffin *et al.* 1991; Wight 1992), particularly for young women for whom this still bears the stigma of sexual 'looseness' (Holland *et al.* 1990, 1991). Young men may also be embarrassed to be seen buying condoms in pubs, pharmacies and other public places (HEA 1991). The issues relating to young women and condom use require a different approach from those relating to young men (Bury 1991). Not only may young people be uncomfortable discussing sexuality, but health educators, teachers and parents may have complex and contradictory attitudes (Allen 1987; Clawar 1977; Hirst 1994; Scales 1980, 1982; Sex Education Forum 1993; see also Hutton 1992).

One message which emerges strongly from much of the literature is the importance of approaching sexual health from a viewpoint of 'positive choice'. 'There are lots of enjoyable things you can do' rather than a 'negative finger-wagging "no" approach' (Waldock n.d.:38-9). Similarly, it is important to allow young people to set their own agenda and explore issues related to sexual health promotion and risk reduction in an open and experiential way.

### ***Health Promotion Interventions***

A number of reviews and meta-analyses of the effectiveness of sexual health promotion interventions have been carried out (Kirby 1980, 1991, 1992, 1993, 1995; Stout and Rivera 1989; Oakley *et al.* 1994, 1995a 1995b; Eisen and Zellman 1992; Hofferth *et al.* 1991; Stahler *et al.* 1989; DiCenso 1995; Peach *et al.* 1994; Peckham 1993; Peersman *et al.* 1996). A division between programmes aimed at preventing unintended pregnancy and those aimed at reducing the risk of HIV-infection and other STDs is common (Evans *et al.* 1994). Most of the programmes reviewed are school-based, although some involve youth services, and General Practice or other health care settings. Few programmes include access to contraceptive services. A new approach in the USA is the provision, often school-based, of special reproductive health clinics for young people (Kirby 1992). While few evaluations have been carried out, monitoring of use patterns suggests high acceptability among teenagers. In the UK, special health clinics for young people have been set up outside schools on a trial basis (Peach *et al.* 1994). Again, there has been no formal evaluation but demand for these services where they are set up seems high, and the rationale for purchasing such services is well-established (Wilson *et al.* 1994).

There are a range of outcome measures to assess the impact of sexual health promotion programmes for young people : knowledge about sexual health issues; attitudes and values concerning sexuality, reproduction, and contraception; sexual and other behaviours such as the initiation of

sexual activity, heterosexual and/or homosexual behaviour, frequency of sexual activity, number of sexual partners, extent and quality of communication with sexual partners, use of contraception, rates of unintended pregnancy and STDs, patterns of injecting drug use. The primary aim of many programmes is to increase knowledge so as to ultimately decrease risk-taking behaviour, assuming a link between knowledge and behaviour. Some programmes aim to promote abstinence, while others try to encourage the practice of protected sex with a limited number of partners. Some studies are unclear about the range of outcomes targeted, and/or describe a broad list of aims which are not matched with appropriate outcome measures. Few evaluations have involved young people themselves in their assessment of effectiveness.

The general conclusion of the reviews/meta-analyses is that only a small minority of evaluations have used designs enabling questions about effectiveness to be answered. For many people in this field, 'evaluation' means asking people if they enjoyed receiving or giving a particular intervention; it also means taking at face value people's reports of the behavioural impact of interventions. Test-retest reliability studies indicate that sexually active young women are more consistent reporters of their own behaviour than young men, particularly ethnic minority young men (Rodgers 1982; see Catania *et al.* 1990a, 1990b for general reviews).

The stock-in trade of evaluation research has been the knowledge-, attitude- and behaviour- survey using a pre- and post-test design only. This approach to evaluation can not control for the influence of factors extraneous to the intervention. Much evaluation is weak because it is largely descriptive, measures only short-term and small-scale outcomes, lacks control groups, is based on small samples, and fails to report data for all outcomes targeted. The review by Peersman *et al.* (1996) reported on 110 outcome evaluations assessing the impact of sexual health promotion interventions on the knowledge, attitudes or behaviour of young people. The aim of the review was to identify the subgroup of studies with sufficient methodological strength to generate reliable conclusions as to the effect of interventions. The methodological approaches used, follow the model for reviewing health care interventions established in the Cochrane Collaboration (Cochrane Collaboration 1994), and the work of other reviewers in the health, education and social welfare fields (Biglan *et al.* 1987; Chalmers and Haynes 1994; Dickersin *et al.* 1994; Knipschild 1994; Mulrow 1994; Loevinsohn 1990; MacDonald *et al.* 1992; Schnaps *et al.* 1981; Schwartz *et al.* 1980). Only 21 (19%) of the 110 outcome evaluations (19%) were judged to be methodologically 'sound' (i.e. employing a control/comparison group equivalent to the intervention group on socio-demographic and baseline outcome variables; and reporting both pre- and post-intervention data for each group on all outcome targeted). Part of the reviewing process consisted of comparing the claims to effectiveness made by the authors of studies with those derived from the review process, bearing in mind the need for methodological soundness as a base for establishing effect. Most of the interventions judged effective by authors were found to have flawed



evaluation designs (84%). Since conclusions about the effect of an intervention can not be drawn from a flawed study, the authors' conclusions were considered unreliable in 84% of the studies. For all 'sound' outcome evaluations, there was 24% agreement between authors and reviewers on the interventions being effective; 33% on them being partially effective; and 5% agreement as to some positive effect. In 24% of cases, authors judged the intervention effective or partially effective but the reviewers disagreed; the reviewers judged them ineffective or unclear in their effect. The main reason for reviewers judging the effect of an intervention as unclear, was a high attrition rate (i.e. a third or more) not adequately dealt with in the data analysis.

It is important to note that the emphasis on soundly designed outcome evaluations does not mean that other forms of evaluation are not important. On the contrary, all intervention work should be firmly based on qualitative needs assessment exercises in which young people are asked for their opinions on the services they need/want; and well-designed process as well as outcome evaluations of interventions should be conducted.

### ***What do we know?***

Schools offer the unique advantage of providing access to large numbers of children and young people over a number of years before they start to engage in sexual risk-taking behaviours (DiClemente 1993). However, it is important to note that those young people at highest risk, are those least likely to be regularly attending school. High attrition rates among irregular school attenders were common threats to the validity of claims made about the effectiveness of school-based sexual health promotion programmes. Bond *et al.* (1992) describe the requirements for reaching the increasing numbers of street youth in urban areas. These include : creating a climate of communication and confidence; being honest about educational intentions; and recognising the material constraints affecting these young people's lives. Up to 20% of such young people may already be HIV-positive (Clatts 1993).

Overall, soundly designed evaluations demonstrate that sex education can be effective in changing young people's knowledge, but there is little evidence of any behavioural effects. This may be because inappropriate interventions have been tried, and/or because the culture surrounding sexual behaviour is extremely complex and ambivalent so far as young people are concerned. Shama and Coombs (1992) argue that one reason for the relative ineffectiveness of school-based sex education is that schools are not autonomous cultural agents. They serve as means of social and cultural reproduction, ensuring the transmission of wider cultural values and roles to students. Because of this, they have by definition limited capacity to bring about students' behavioural change. While there is little evidence of the impact of mass media health messages on young people's behaviour, many young people experience a dissonance between hearing about sexuality in one way or another via

the media, but getting their own personalised sex education inappropriately and too late (Evans *et al.* 1994).

Health promotion as a field has been generally slow to develop and test theories of knowledge-, attitude- and behavioural-change (Downie *et al.* 1990; Tones *et al.* 1991). Relatively few of the sexual health interventions are theoretically derived, and few studies test hypotheses based on previous work. Well-designed evaluations suggest that cognitive-behavioural approaches have greater potential than others in terms of affecting behavioural outcomes (Kirby 1992). Future work should not be based on telling young people not to engage in behaviours which put them at risk of contracting HIV or becoming pregnant, as this is unlikely to be effective. Sexual health promotion should include the 'positive' side of being young, including the pleasures to be derived from safer sex. There is no evidence that providing sexual health information and practical resources to young people increases sexual experimentation or risk-taking behaviour (Committee on Health Promotion 1995).

The use of peers in the delivery of health promotion interventions has become fashionable (Editorial 1994; Finn 1981; Reinders and Vogelaar 1990). The term 'peer' is used to describe a multitude of possible interventions (Aggleton 1992). Most peer education interventions have either not been evaluated in terms of their effectiveness in altering relevant outcomes, or evaluation has been restricted to a description of the experiences of those who have taken part in such schemes. Furthermore, existing outcome evaluations have methodological problems (Hillman *et al.* 1991; Quirk *et al.* 1993; Remafedi 1994; Shulkin *et al.* 1991) to the extent that the conclusions can not be relied upon. A pilot study for a randomised controlled trial of a peer-assisted sex education programme led by a consortium of UK researchers is now underway in England (Stephenson *et al.* 1995). The intervention is aimed at 13-16 year olds in 28 schools and will include a long term follow-up into early adult. This study matches in design and outcome measures one which is being carried out in Scotland (Wight *et al.* 1994). The two studies will provide important comparative data, as the Scottish intervention is teacher-led.

The effectiveness of using drama as an educational tool is claimed rather than proven. Observational data show an increase in awareness of health risks following exposure to dramas about HIV/AIDS (Denman *et al.* 1995; Hillman *et al.* 1991), but there is no evidence of behavioural change (Frankham and Stronach 1990), and no adequately designed evaluations have been reported.

Gender is a variable of considerable importance in the field of sexual health promotion. The experiences and needs of young men and young women are not the same. For example, young women tend to know more, to discuss sexual health issues more and to use informal networks more effectively than young men (Abraham *et al.* 1991). Well-evaluated sex education programmes find gender differences in programme effectiveness which reflect differences in issues relating to sexuality,

power and empowerment (see e.g. Thomas *et al.* 1992). There is some evidence that young people prefer the biological facts to be taught in single-sex groups, but for social and emotional issues to be discussed with both sexes (Evans *et al.* 1994). However, there appear to be no studies comparing the effectiveness of sex education provided separately to young men and young women.

In summary, most school-based sex education can be characterised as: too brief; too focused on young people who remain in school and too little concerned with those who drop out or fail to attend; lacking clear goals for behavioural change; having a narrow focus on information-giving and fear arousal. Most programmes predominantly reflect adult attitudes towards young people's sexuality rather than approaches which are based on young people's own experiences and attitudes, on what they know and what they feel they need to know. These deficiencies have led to suggestions that a more powerful approach would be to combine school-based sex education with an attempt to change the broad social environment of young people (Allen-Meares and Shore 1986; Curtis 1992; Ennew 1989; Schultz 1986).

## **Research gaps**

While many approaches to sexual health education have been tried, evaluation standards have been low, and need to be improved. There should be a commitment to carrying out well-designed trials with long-term follow-up to establish the effectiveness of sexual health promotion interventions in changing sexual risk behaviours of young people.

Health promotion interventions aimed at preventing STDs including HIV; decreasing unintended teenage pregnancy; and avoiding injecting drug use should be integrated so that young people are not exposed to mixed messages.

The approach of school- or community-based clinics providing access to safer sex information and contraception should be formally evaluated in the UK. Teenage pregnancy in particular is a multi-factorial issue demanding a multi-factorial solution.

An issue which deserves attention is the lack of studies examining the effectiveness of sex education provided separately to young men and young women.

There are also particular research challenges in developing appropriate approaches for younger teenagers, and for those who engage in drug risk-taking behaviours, who are homeless and/or are for other reasons at higher risk and less likely to be captured by school-based programmes.

There are weak links between qualitative studies and experimental approaches to sexual health promotion. There is a need for the latter to be more firmly based on qualitative work establishing young people's needs and experiences in the sexual health field. This is a particular challenge, in view of the lack of association between knowledge and perceived risk on the one hand, and actual behaviour, on the other. The message of the qualitative work is that many young people find it difficult to *apply* what they know in personal, real-life situations, and that sexual health education might be more effective if oriented around this need.

There is also a need for qualitative work on the social meanings of sex prior to the design and implementation of interventions (Dokrell and Joff 1992; Ennew 1989; Moore and Rosenthal 1991, 1992; Scrimshaw *et al.* 1991) to avoid assuming that young people's definition of terms in the sexual arena are the same as those of adults, or that they understand those terms used by adults (Curtis *et al.* 1989; Frankham and Stronach 1990; HEA 1991).

## 6. Substance Abuse : alcohol

A survey in 1992 found that 12% of 11-15 year olds are regular drinkers; weekly consumption of alcohol in 14-15 year olds appeared to be increasing; and in an average week, 4% of under-16 year olds consumed alcohol in excess of the 'sensible' limits for adults, i.e. more than 14 units of alcohol for women and more than 21 units for men (Health Education Authority 1992). The vast majority of young people have tried alcohol by the age of 14, and at 17 over 50% of young women and 90% of young men claim to have drunk illegally in a public place (Black and Weare 1989).

Despite publicity on the widespread use of illicit drugs, it is tobacco- and alcohol use that exacts the greatest public health toll in terms of associated mortality and morbidity. Whereas tobacco use results in chronic diseases that manifest later in life, the health consequences of alcohol use are already evident during 'adolescence' (Perry *et al.* 1993). Alcohol is a significant factor in 28% of fatal road accidents, 40% of deaths from fires, and 15% of all drownings (Fact Sheets 1995). Unintentional injuries, homicides and suicides account for 80% of all deaths in young people; many of these are associated with alcohol use (Rosen *et al.* 1990). In addition, cognitive maturation, social competencies and school achievement also appear to be altered, delayed or harmed by precocious or excessive alcohol use (Semlitz and Gold 1986). Sixty percent of under-18 year olds arrested in the UK, had been drinking (Black and Weare 1989). Lowering the legal minimum drinking age to 18 years in two Australian States significantly increased male juvenile crime by 20-25% (Smith and Burvill 1986).

The Health of the Nation targets in the area of alcohol use/abuse are not specifically related to young people. Targets are : to reduce by a third the proportion of men drinking more than 21 units, and women drinking more than 14 units of alcohol per week by the year 2005, i.e. to 18% of men and 7% of women.

The Department of Education issued a circular 'Drug Prevention in Schools' including guidance on dealing with alcohol; the circular advises that alcohol education should be provided in the context of an overall drug- and health education-programme (Fact Sheets 1995).

### **Research Questions**

Research has mainly focused on establishing the level of alcohol consumption in different populations; and the links between alcohol consumption and the use of other substances including tobacco and illicit drugs. Alcohol-abuse prevention has mainly targeted drink-driving, and has experimented with both peer- and parent-involvement in the delivery of interventions. Another major area has been the research conducted into the social issues related to alcohol use/abuse. **Table 6** shows the

types of health promotion studies in young people in the area of alcohol use/abuse. Studies reporting an outcome evaluation of an alcohol abuse prevention programme constituted 14% of the total of studies before 1990 and 12% from 1990 onwards.

**Table 6** Number/percentage of types of health promotion studies in young people in the area of alcohol use/abuse before 1990 as compared to the period from 1990 onwards

|                     | <1990      | ≥1990      | Total      |
|---------------------|------------|------------|------------|
| Descriptive studies | 217 (86%)  | 210 (88%)  | 427 (87%)  |
| Outcome evaluations | 35 (14%)   | 29 (12%)   | 64 (13%)   |
| Total               | 252 (100%) | 239 (100%) | 491 (100%) |

### ***Descriptive Studies***

To guide future alcohol-related research and interventions, the current alcohol use and trends over time must be understood. Data on alcohol consumption in a national sample in the UK of about 17,000 young people at age 16 and again at age 23 showed that : 12% of men consumed more than 50 units and 2% of women consumed more than 35 units of alcohol per week at age 23; both levels of intake are defined as heavy consumption. Those who drank most and more frequently at age 16 were the most likely to drink heavily at 23 (Ghodsian and Power 1987). Little is known of the extent to which drinking amongst teenagers is related to alcohol abuse in later life (O'Connor 1977; Stacey and Davies 1970). Khavari (1993) reported that individuals professing a high degree of religiosity were significantly less likely to use illicit mood- and mind-altering substances than those with a low degree of religious belief.

Many studies point to gender differences in alcohol use, with men being heavier drinkers than women (Berkowitz and Perkins 1987; Edwards 1985; Hunter 1990; Jonston *et al.* 1989; Perlstadt *et al.* 1991; Spigner *et al.* 1993). Spigner *et al.* (1993) report that female undergraduates were more likely than male undergraduates to perceive the use of alcohol and other drugs as being associated with risk. Edwards (1985) found that women show more resistance to peer pressure to drink; and Hunter (1990) reported different socially acceptable contexts in which female drinking occurred (relaxing, eating, celebrating events). These findings suggest the need for continued gender-specific research and health promotion in substance abuse prevention.

The legal ability to purchase alcohol is an important factor in the alcohol consumption among young people (Baer *et al.* 1992). Gofton (1990) argues that drinking patterns have changed over time : young people now

seem to regard alcohol as a major mood-altering drug, and both seek and expect to get drunk in the course of a weekend session. Pubs have changed in response to the market power of young people who have relatively high disposable incomes and time to spend. A drinking session typically involves a circuit of several pubs and a large amount of time spent moving from place to place. Young women are a very important part of the new drinking pattern as lucrative customers for high priced drinks and within the context of courtship and sex (Gofton 1990). Despite the attraction to the opposite sex, young people continue to spend much of their free time in the company of same-sex peers; and their own gender is more likely to serve as the reference group for social influence, particularly with respect to substance use (Bochner 1994).

Knowledge about alcohol-related health risks seems already high in young people, though important gaps exist. In a survey in high school and university students in Australia, 90% of respondents indicated that alcohol would be harmful if taken during pregnancy, yet 15% thought it would take more than five drinks a day to cause any harm to the fetus. Only 69% of men said they would strongly discourage their female partner from drinking when pregnant (Oei *et al.* 1986). A survey in 17-18 year olds in the UK showed high levels of alcohol-related knowledge, but less than half of the respondents were not aware that alcohol abuse causes more deaths than illegal drug use. They also overestimated the amount of alcohol that can be drunk without harm or without going over the legal limit for driving. Most said they would not drink more if they had more money. However, this was not the case for heavier drinkers who were also more likely to believe they knew enough about the health risks associated with alcohol. Most found alcohol too easily available to under 18s, but did not want its sale banned in supermarkets or its price raised (Black and Weare 1989). These findings suggest that measures to reduce availability and to increase the price of alcohol, though unpopular, might be effective in reducing alcohol consumption especially in heavier drinkers (Black and Weare 1989). In a study of the effect of commercials imparting knowledge about the link between alcohol and adverse health effects, Bochner (1994) reported that light-to-moderate drinkers found the message to be more persuasive than heavy drinkers; the credibility of young women as 'messengers' of alcohol facts was generally rated higher than that of young men independent of the gender of the target audience. These findings imply that different messages and tactics are required to reach different groups of drinkers.

The age at which young people start drinking alcohol has been declining (Aitken PP 1978; McKechnie *et al.* 1977). The literature suggests that the initiation, maintenance and cessation/prevention of substance use in teenagers is critically affected by peer group pressure. This is mediated explicitly through invitations to substance use and implicitly by perceived peer usage leading to modelling and imitation, and by perceived peer approval/disapproval leading to social reinforcement (Bochner 1994). Khavari (1993) carried out a study in 18-24 year old students to determine the influences that led them to the initial use of different substances. Respondents implicated that friends in 44%, themselves in 42%, and

parents in 10% of the cases had introduced them to the use of alcoholic beverages. Since first use was often suggested by significant others (in 54% of cases), it may be possible to develop prevention strategies that enlist the help of these individuals in discouraging initial trying (Khavari 1993).

Much of the research supporting inter-generational transmission of alcohol abuse has come from retrospective accounts given by adults suffering of drinking problems (Latcham 1985; Midanik 1983). Findings from prospective follow-up studies have been less clear-cut (Knop *et al.* 1985; Orford and Velleman 1990; Rydelius 1981). A prospective comparative study of 16-35 year old children of parents with drinking problems found that larger numbers of this group than of the control group had commenced alcohol use in their early teens and had used drugs in their later teens. More were also currently using alcohol in a risky way; more were heavy smokers; and more were using illicit drugs regularly (Orford and Velleman 1990).

Several researchers have suggested that alcohol use is part of a systematic progression of drug use. Tobacco and alcohol have been labelled 'gateway drugs' since their use almost always predates the initiation of other drug involvement (Bean *et al.* 1988; Catalano *et al.* 1991; Kandel and Logan 1984; Perry *et al.* 1993). This does not mean that alcohol use causes the use of other drugs, but rather that earlier alcohol use may signal greater potential for the progression to other drug use and for alcohol-related problems. A study in 13-16 year olds from a suburban area of Paris confirmed that young people with persistently violent behaviour started drinking alcohol and smoking at an earlier age, and were more likely to have tried and repeated the use of illicit drugs and to become drunk. Duration of alcohol consumption -at least 3 years of regular consumption- was one of the significant variables. The problems of the study group were less *caused* by massive alcohol consumption than associated with alcohol consumption and expressed through it (Choquet *et al.* 1991). Even if interventions only delay alcohol use rather than prevent it, at least the potential for earlier involvement with illicit drugs or for alcohol-associated problems is diminished (Perry *et al.* 1993).

Prevention programmes that target both tobacco- and alcohol-use are often recommended. However, clarification of the differences between these substances and their use is necessary. In addition, the societal norms for tobacco in comparison with those for alcohol-use differ significantly. Over the past two decades, there has been a considerable shift towards non-smoking, but this normative shift is not as prominent or unambiguous in relation to alcohol use with the exception maybe of drink-driving. Alcohol has become more readily available; adult usage confers legitimacy on alcohol use as an acceptable adult behaviour and is particularly functional to young people as a way of signalling their transition from childhood to adulthood (Perry *et al.* 1993). The issue of alcohol is a complex one because it is a message of moderation rather than abstinence (Black and Weare 1989). Combining messages



concerning the use of tobacco and alcohol may dilute the potential of affecting either.

### **Health Promotion Interventions**

The majority of prevention programmes have been school-based and sought changes at the level of personal behaviour, hence could be considered as demand-reducing strategies. Although some have demonstrated success to a certain extent (Albert and Simpson 1985; Bremberg and Arborelius 1994; Perry *et al.* 1993), others have resulted in harmful outcomes (Albert and Simpson 1985; Moskowitz 1989; Stuart 1974).

Studies reporting positive effects include comprehensive school programmes comprising of a minimum of 40 lessons, and specific health education curricula (Bremberg and Arborelius 1994). These are however not transferable to schools which lack resources and opportunities to implement such extensive programmes. A meta-analysis of 29 school-based alcohol interventions provided the following results : knowledge about risks increased, but attitude change appeared more difficult; there were modest effects on immediate behavioural outcomes; interventions based on social reinforcement, social norms, and developmental behavioural models were more effective in changing long-term alcohol outcomes than information-only programmes (Rundall and Bruvold 1988).

University students in the USA seem overwhelmingly uninterested in any type of alcohol prevention programme regardless of the amount of time or effort required; and those who consume the most alcohol seem the least interested in participating (Black and Smith 1994). The development of recruitment strategies and appealing programmes is therefore a priority. Recruitment strategies based on social marketing have shown that the interest and intention of students to enroll in alcohol prevention programmes may be optimised by providing flexible, convenient, low-cost programmes that encourage friends' participation, communicate alcohol-related risks and offer university credit or refunds as participation incentives. The design of programmes may be enhanced by emphasising the positive outcomes of reducing alcohol consumption, improving the quality and quantity of alternatives to the social atmosphere connected with drinking, and soliciting respected opinion leaders to communicate alcohol reduction messages (Black and Smith 1994).

Efforts to prevent or delay alcohol use have been most effective in early adolescence (Perry *et al.* 1993). It is, however, questionable whether those effects will last, since few studies have included long-term follow-up. Programmes for older 'adolescents' are more appropriately secondary or tertiary prevention efforts, since use has often already been initiated and socially reinforced (Perry *et al.* 1993). Attempts to persuade those who drink and drive to adjust their consumption of alcohol with the aim of minimising the risk to themselves and others, have met with

limited success. Mann *et al.* (1986) found that alcohol education programmes directed towards young drivers changed their knowledge and attitudes, but little changed in their behaviour. One obstacle to behaviour change is the condition of drivers at the time changes are to occur, i.e. the need to take a rational decision when decision-making powers are impaired by alcohol. Therefore, many approaches have addressed behaviour before drinking starts, like 'designated driver' and informal ride-sharing arrangements. Over the past decade, the scope of efforts to reduce the risk of alcohol-related injury has been expanded to encompass others who are in a position to intervene directly in the drinking and/or driving. Studies have indicated that behaviours involving intervention in the drinking and driving of others rather than control over one's own drinking are favoured (McKnight 1990). Peer intervention programmes have focused on youth rather than adults because young people tend to be more susceptible to the influence of peers, and appear to be more inclined to intervene. Intervening can be increased through instruction and role-playing (McKnight 1990).

A school-based intervention to reduce the frequency of impaired driving among grade 11 students in the USA found positive changes with respect to knowledge; personal susceptibility to consequences; opposition to driving while impaired; and behavioural intentions not to drive while impaired. However, the intervention group also showed an increase in drinking frequency as compared to the control group. Two explanations were suggested: a non-programme effect i.e. the target group consisted of people who were starting drinking and were generally increasing their levels of consumption; or a programme effect i.e. increasing knowledge and dealing with the topic may encourage students to drink more frequently which is a reason for concern. It was difficult to distinguish between these competing explanations because the intervention and control groups were non-equivalent (Albert and Simpson 1985).

Parents can exert influence on the alcohol-related behaviour of their children. Surveys have shown that a majority of parents claim to be comfortable discussing alcohol issues with their children, checking up on their drinking-related behaviour, and exercising control over such behaviour when necessary. However, there is very little correlation between teenagers and their parents in reports of parental intervention. In addition, parents who acknowledged their children's friends drink-driving behaviour outnumbered those willing to admit their own children's drink-driving (McKnight 1990).

Response rates of parents to invitations to become involved in alcohol prevention programmes is generally low. Parents who do respond are likely to be already involved in and sufficiently concerned with their children's drinking, and hence are probably less in need of the programme. One possible target would be parents of teenagers arrested for drinking and driving. Juvenile courts might make parent participation in such programmes a part of the plea bargain under which the teenager's driver's license is reinstated (McKnight 1990).

Direct attention to social environmental variables (e.g. parental behaviour, peer role models, normative expectations, social support) seems critical, and strategies that explicitly reduce or prevent access to alcohol (e.g. legislation, enforcement, policy changes, education) are important (O'Malley and Wagenaar 1991; Perry *et al.* 1993). Hence, in addition to demand-reduction, supply-reducing approaches in the home and in the community appear necessary. Gofton (1990) criticises the ambivalent governmental attitudes with respect to alcohol consumption, related to the immensely profitable market for alcohol : licensing laws have been extended; alcohol remains relatively cheap and easily available; there are no curbs on advertising or sponsorship by advertising at sports- and other events. Advertising uses models and images designed to appeal explicitly to young people and seems to influence their alcohol consumption (Black and Weare 1989; Johnson *et al.* 1995).

On the whole, legal measures have been more influential than purely educational efforts, provided the legal measures are themselves well publicised and enforced. A source of intervention with a great potential effect is those who purvey alcohol in bars, restaurants and stores. A well-publicised enforcement effort directed at off-license establishments raised the refusals of service to minors from 37% to 57% (McKnight 1990). Measures to prevent problematic drinking at stadia and arenas include : not serving alcoholic beverages in the stands; limiting the number of carry-out beverages to an individual; and suspending alcohol sales before the event is over (McKnight 1990). These programmes have to involve strong management participation and necessitate ways of off-setting financial losses from the inevitably reduced sales.

One example of a community-based intervention trial is currently ongoing. The aim is to test the effectiveness of a programme to reduce the incidence and prevalence of alcohol use among a cohort of 2,419 young people in Minnesota. The intervention cohort is being exposed to school-based skills training, peer leadership, parental involvement and community-wide policy changes. The project involves a large number of communities and focuses on young 'adolescents'. It also involves multiple levels within each community and uses both demand- and supply-reduction strategies. Alcohol-related environmental variables are targeted for change such as opportunities, barriers, social support and modelling. The underlying philosophy is that barriers reduce the burden of personal decision-making for the young person; place some responsibility for behaviour change on adult merchants, law enforcement officials and policy-makers; and project community-level norms around young people's alcohol use that are consistent with the parent involvement and school-based programmes (Perry *et al.* 1993).

## 7. Substance Abuse : illicit drugs

Each year, some 3 million people in the UK (6% of the population) take an illicit drug. There were 28,000 drug addicts in the UK in 1993; the number of newly notified addicts increased by 20% since 1992. The number of notified addicts under the age of 25 years has risen by 20% since 1990. The recent British Crime Survey suggests that 28% of 16-29 year olds had taken an illegal drug. Population surveys report that 14% of 14-15 year olds and 3% of 12-13 year olds admit to taking an illegal drug. Cannabis is the most widely used illegal drug; 18% of 16-19 year old and 14% of 20-24 year olds reported its use in 1994; 24% of 16-29 year old reported its long term use (Fact Sheets 1995).

The Health of the Young Nation does not include targets for the reduction in drug use. The Department of Education however, has issued a circular 'Drug Prevention in Schools' including guidance on overall drug-education (Fact Sheets 1995).

### **Research Questions**

Research has focused on the adverse effects of drug use on health; the prevalence of drug use; knowledge-, attitude- and behaviour-surveys; and the links between different types of illicit drug use and between drug use and alcohol/tobacco use. A wide variety of substance abuse prevention programmes have been conducted, either targeting illicit drug use only or incorporating the prevention of alcohol-, tobacco- and illicit drug use. As such, some of the studies presented in this chapter are also of relevance to the chapters of alcohol - and tobacco abuse. **Table 7** shows the types of health promotion studies in young people in the area of illicit drug use. Though the overall number of studies in this field increased more than threefold, studies reporting an outcome evaluation formed 14% of the total number of studies before 1990 and only 8% from 1990 onwards.

**Table 7** Number/percentage of types of health promotion studies in young people in the area of illicit drug abuse before 1990 as compared to the period from 1990 onwards

|                     | <1990     | ≥1990      | Total      |
|---------------------|-----------|------------|------------|
| Descriptive studies | 74 (86%)  | 264 (92%)  | 338 (91%)  |
| Outcome evaluations | 12 (14%)  | 23 (8%)    | 35 (9%)    |
| Total               | 86 (100%) | 287 (100%) | 373 (100%) |

## ***Descriptive Studies***

Risk for cancer, heart disease, and violent death increases with longer exposure to certain drugs, which makes the trend towards earlier onset of and longer lifetime exposure to substance abuse of particular concern (Hansen *et al.* 1988). Preventing the initial onset of regular substance abuse appears to be the most cost-effective approach to prevention of substance abuse and its sequelae.

Marijuana abuse is a factor in accidents and acute respiratory disease. Its contribution to cancer and chronic respiratory disease is unknown, though there is some indication that long-term heavy marijuana smoking may be a serious lung cancer risk factor (Durell and Bukoski 1984; Hansen *et al.* 1988).

Alcohol, tobacco, and marijuana are considered 'gateway' drugs to other drug abuse. The use of substances as cocaine, amphetamines, barbiturates, and opiates is extremely low for persons who have never experimented with alcohol, tobacco and/or marijuana (Kandel 1975). Some authors have even shown that marijuana use is a 'necessary' condition for the occurrence of cocaine use (Yamaguchi and Kandel 1984a,b; Henningfield *et al.* 1990). The more extensive, the more intensive, and the longer one uses drugs such as marijuana, the more likely it is that one will progress to drugs such as cocaine and heroin (Clayton and Leukefield 1992). A study on stages of drug use in Australian teenagers, on the contrary, showed that 29% of current users of illicit drugs reported never having used marijuana, but alcohol and especially tobacco were implicated as important 'gateway' drugs (Blaze-Temple and Kai Lo 1992).

Several studies reported on the relationship between violence and drug use. Kingery *et al.* (1992) found that substance (illicit drugs, alcohol) users in comparison with non-users fought more, took more risks which predisposed them to assault, and were assaulted more both at school and outside school. These findings suggest that aggressors may also be victims, and that substance abuse is related to victimisation.

The reasons as to why individuals engage in substance abuse remain varied and multiple. Research suggests that young people at secondary school level are the most vulnerable to the social pressures that lead to experimental and subsequent regular use of psycho-active substances (Durell and Bukoski 1984; Kandel *et al.* 1984). Rosenthal (1980) reported that the single main determinant of whether a young person uses marijuana is whether or not his/her best friend uses it. A survey in 3,073 students aged 11-16 years found that : 24% of solvent and/or illicit drug users compared to 3% of non-users said that their best friend took drugs; 12% of users said they were pressured into drug-taking by their friends; 45% of users had been offered drugs by friends; and 21% said their source for drugs to be 'exclusively friends' (Swadi and Zeitlin 1988). Waller (1992) argued that for most teenagers, experimenting with drugs is part of an exploratory process whether or not to accept parental and

societal values, which is a natural stage of growing up and is normally short-lived. Rebelliousness and societal/institutional issues were perceived to be related to the onset of marijuana use among young people (Garbany and Eiseman 1987). Experimenting with drugs is common and most teenagers are aware of it, so warnings about mortality from parents or other well-meaning adults, including doctors, tends not to be taken seriously. On the contrary, heavy warnings may be counterproductive, as they reinforce the view that the teenager knows more about drugs than the adult (Waller 1992).

Surveys on drug use seem to converge on the finding that the prevalence of multiple, habitual and injecting drug use are relatively low. However, findings are expected to represent a 'floor' rather than a 'ceiling' because of the likelihood of under-claiming in self-reports. Studies agree that young men and women differ in their frequency of substance use (Ensminger *et al.* 1983; Kandel 1985; Leitner *et al.* 1993; Wright and Pearl 1995). The reasons for this difference are not yet fully understood, but in the meanwhile they should be taken into account when planning prevention research and services (Swadi and Zeitlin 1988).

Over 7,000 people aged between 12 and 59 living in England and Wales took part in the 1992 British Crime Survey and were asked about their use of 12 drugs 'which people are not supposed to take unless they have a doctor's prescription'. Those aged between 16 and 29 were more likely to say they had taken any of the drugs; 28% said they had ever taken a drug and 14% said they had done so in 1991; 33% men and 23% women said they had ever taken a drug. Cannabis followed by amphetamines were the most popular drugs, with 9% of the 16 to 29 year olds saying they had taken these at some stage; ecstasy (9%) and LSD (8%) were most likely to be taken by 16 to 19 year olds; cocaine was most likely to be taken by 16 to 29 year olds (3% ever, 1% in 1991); only 1% of the 12 to 59 year olds said they had ever taken 'crack' or heroin (Mott and Mirrlees-Black 1993). A survey in 1992 in Glasgow, Bradford, Nottingham and the London Borough of Lewisham found that the number of young people admitting to ever taking illicit drugs ranged from 32% in Bradford to 52% in Glasgow; more men than women admitted to ever having taken an illicit drug. Cannabis was by far the most common illicit drug; amphetamines, LSD and/or ecstasy had been used by 6 to 10% of young people. Habitual use (defined as at least once a month) of any specific illicit drug was comparatively rare, even among the 9-18% of young 'recent' users. Levels of injecting drug use were very low with less than 1% of respondents admitting this behaviour. In terms of availability of drugs, heroin, cocaine and crack were deemed relatively more available than cannabis, ecstasy or amphetamines (Leitner *et al.* 1993). A survey of 2,239 15 to 16 year olds in Wales reported that over 20% had tried drugs at some time with 10% having done so in the past month; few of the young people reported multiple or regular use. The most frequently reported substances were marijuana, solvents and glue, and psilocybin (Smith and Nutbeam 1992).

Young people's knowledge and experiences of illicit drugs were monitored between 1969 and 1994 at intervals of five years in three Wolverhampton secondary schools of different socio-economic background. The results over 25 years showed that : the proportion of pupils who knew someone taking drugs increased from 15% to 65%; the proportion of pupils who had been offered drugs increased from 5% to 45% - with the highest proportional increase occurring in the past 5 years. In 1994, the proportion of pupils mentioning 'ecstasy', amphetamines, and crack cocaine increased significantly and 'poppers' (amyl nitrate) were mentioned for the first time; the proportion mentioning opiates decreased significantly. The main perceived reason for taking drugs were "to feel big, to show off, to look grown up". Despite more education about drugs, pupils' knowledge remains limited. As television has continued to be the main source of information, the media has a responsibility not to glamorise drugs (Wright and Pearl 1981,1995).

With exceptions (Cotten-Huston 1982; Regan 1974; Sutherland 1977), studies have tended to concentrate more on knowledge, attitudes and behaviour than on attempts to determine what questions students themselves want answered. The study by Cotten-Huston (1982) indicated that students' interests were in the areas of rehabilitation, and drug trafficking and laws, followed by the physiological effects, the money hassle, characteristics of abusers, the addictive process and quitting. Determining the best source of information has been comparable to the dilemma about what to teach young people (Cotten-Huston 1982; Cotten-Huston and Baum 1980; Kline *et al.* 1972; Panzica 1973; Smart 1972; Smart and Fejer 1972). Cotten-Huston (1982) reported that male ex-addicts' and female specialist's roles as communicators were most effective for attitude change in students regardless of gender. Female students had a far more positive change in response to the female specialist than did males, while the female ex-addict's effect on male students was considerably more positive for males than females. The male specialist was virtually ineffective. Female communicators were asked more questions than male communicators.

### ***Health Promotion Interventions***

One of the first approaches to drug abuse prevention in the USA has been the development of public information and media campaigns in the late 1960s and early 1970s. These sometimes unrealistically exaggerated the harmful effects of drugs, thereby creating a credibility gap. Because of the concern that these campaigns may have stimulated drug use and contributed to the polarisation between the establishment on the one hand, and young people and the pro-drug use counterculture on the other hand, a moratorium was imposed (Durell and Bukoski 1984). However, some authors claim that mass media does have a central role to play in the providing information (Barnea 1989; Flay and Cook 1981).

Efforts have been made to counter the pro-drug/alcohol messages the media transmits. Flay and Cook (1981) indicate that these efforts have

been in two domains : (1) attempts to train young people to recognise and resist pro-substance use messages; (2) attempts to use the media, particularly television, as prevention agents. A number of evaluation studies on TV programmes integrated with school-based programmes targeted at both students and parents, have reported positive results (Flay and Cook 1981; Flay *et al.* 1983; Flay *et al.* 1990).

A wide variety of programmes to prevent substance abuse has been described. They differ in their underlying strategies, target populations, intensities, implementation, outcome measures, evaluation designs etc. The evaluations have generally been of poor quality (Bangert-Drowns 1988). The literature on programme effects is inconclusive: some studies report little or no effect on drug use (Braucht and Braucht 1984; Dusewicz and Martin 1981; Hanson 1980; Kinder *et al.* 1980; Schaps *et al.* 1983; Smart 1989; Wittman 1981); some report harmful findings (Bard 1975; Gordon and McAlister 1982; Kinder *et al.* 1980; Smart and Fejer 1974; Tennant *et al.* 1973); others report mixed results depending on the outcome measures used (Bry 1978; Gersick *et al.* 1988; Green and Kelley 1989; Hewitt 1982; Janvier *et al.* 1980); and some have positive results (Bukoski 1981; Resnik 1983). Sheppard *et al.* (1985) argue that what is needed is: better measures of drug use and drug education; on-going monitoring of drug education in classroom settings; longitudinal impact research; a better understanding of the impact of advertising, peer influence, family influence, and drug use within television programmes, movies and songs.

One explanation for the modest effect of drug education on knowledge for example, is suggested to be the minimal exposure to such programmes. Drug education is only one of many topics vying for teaching time and "we would not expect students to learn new geographical or mathematical concepts in one or two lessons, so why do we expect them to learn about drugs with minimal exposure" (Sheppard *et al.* 1985). Rohrbach *et al.* (1993) studied the delivery of school-based substance abuse programmes. They addressed: (a) teacher adoption, implementation, and maintenance; (b) teacher characteristics associated with implementation; (c) the relationship between integrity of programme delivery and programme outcomes; (d) the effectiveness of teacher training and involvement of the school principal in increasing implementation. During the first year, 78% of trained teachers implemented one or more programme sessions, but only 25% maintained implementation during the second year with implementors as compared to non-implementors reporting fewer years of teaching experience; stronger self-efficacy, enthusiasm, and preparedness; teaching methods compatibility; and encouragement by the principal. The intervention for principals increased rates of implementation, but the intensive teacher training did not. Integrity of programme delivery was associated with immediate positive programme outcomes.

Durell and Bukoski (1984) presented two promising prevention approaches: (1) the 'macro' approach which creates a community climate of non-drug use through public information campaigns and the



establishment of parents groups working together with professionals; and (2) positive peer pressure strategies aiming at "saying no" as used in some of the effective smoking prevention programmes (Botvin 1980,1982; McAlister *et al.* 1979,1980; Perry C *et al.* 1980; Perry D *et al.* 1980). Tobler (1986) carried out a meta-analysis of the outcome results of 143 secondary school-based primary prevention programmes, with the aim to identify the most effective programme modalities for reducing teenage drug use. Five major modalities were identified based on the nature and combination of intervention components. These are:

- (1) Knowledge Only (i.e. single modality)  
*assumption* : increased knowledge results in a negative drug attitude which in turn results in decreased drug use.  
*distinguishing features* : presentation of legal, biological and psychological effects of drug abuse; presentation by teacher; limited group discussion; use of scare tactics.
- (2) Affective Only (i.e. single modality)  
*assumption* : psychological factors place certain persons at risk.  
*distinguishing features* : self-esteem building, self-awareness, feelings, values clarification, experiential, humanistic psychology.
- (3) Peer Programmes (i.e. multi-modal programme)  
*assumption* : peer pressure can impact attitudes and behaviours.  
*distinguishing features* : positive peer influence; peer teaching; peer counselling, helping and facilitating; peer participation.
  - A. Refusal Skills  
*assumption* : peer pressure at *interpersonal* level induces drug using behaviours; specific behaviour for specific action.  
*distinguishing features* : *interpersonal* enhancement; resistance skills; saying "no" techniques; surveys showing "everybody isn't doing it"; peer role models; assertiveness skills; intervention techniques -drinking & driving.
  - B. Social and Life Skills  
*assumption* : both lack of *interpersonal* skills and *intrapersonal* sense of competence interplay to cause drug use.  
*distinguishing features* :
    - a. *interpersonal* : communication skills; modelling; feed-back with social reinforcement; assertiveness.
    - b. *intrapersonal* : 'affective' education such as self-esteem building; self-awareness; feelings; values clarification; anxiety reduction; coping skills; aim to increase personal competence.
- (4) Knowledge Plus Affective (i.e. multi-modal programme)  
*assumption* : values and attitude change through examination of personal needs; values and decision making patterns.  
*distinguishing features* : knowledge plus 'affective' education : self-awareness; values clarification; problem solving and decision making skills; focus on the individual's independent decision.

(5) Alternatives (i.e. multi-modal programme)

A. Activities (designed for the 'average' young person)

*assumption* : provision of positive activities is more appealing than drug use.

*distinguishing features* : community activities : youth centres; jobs; voluntarism; entertainment.

B. Competence (tailored to meet the needs of 'at risk' young people)

*assumption* : individual deficits in basic life skills, low self-worth, and limited experiences place young people 'at risk'.

*distinguishing features* : individualisation of activities to produce personal competence such as : basic reading skills, job skills, and physical adventure; aim to increase individual's sense of control over his/her environment.

Identification of the most effective modality must include careful examination of the programme and participant characteristics for their contribution to the success or failure of the modality. Effect sizes for the different modalities were computed for five distinct outcomes: knowledge, attitudes, substance use (alcohol, tobacco, soft drugs, hard drugs), skills, and both direct and indirect behaviour measures. Effect sizes were found to be dependent on the outcome measure employed and the rigour of the experimental design, which had to be controlled for in the analysis. It was concluded that : for Knowledge Only and Affective Only programmes, solid evidence exists for discontinuing their use; multi-modal programmes show definite superiority over single modalities, although the Knowledge Plus Affective modality fell well below the grand mean effect size for all programmes. Drug use patterns significantly changed without concomitant changes in attitudes which may be explained by the fact that unlike a change in basic attitudes, skills can be acquired quickly. Peer Programmes produced the only results which showed change toward the ultimate aim of reducing drug-abusing behaviours. This was obtained by low-intensity programmes making them very cost-effective for the school-based setting. Alternatives Programmes were equally successful for the 'at risk' population groups (i.e. drug users, juvenile delinquents, students with school problems) though these were very intensive and therefore costly. This meta-analysis challenges the theoretical basis for short-term factual programmes that knowledge changes will lead to attitude changes with corresponding behavioural changes. It also challenges the use of an attitudes outcome measure to determine changes in drug using behaviours and mandates the inclusion of relevant drug use measures as final criteria for success (Tobler 1986).

Bangert-Drowns (1988) carried out a meta-analysis of 33 school-based evaluation studies, which found that typical substance abuse education has most positive effects on knowledge and attitudes, but is unsuccessful in changing drug-using behaviours. Attitudinal effects were significantly higher when peers were used as instructional leaders and when group discussion was part of the instructional method. Students

who volunteered for substance abuse education reported lower drug use after intervention than students whose participation was obligatory.

Promising programmes also seem to be those that are initiated in early 'adolescence', and that focus on delaying the onset substance use of 'gateway drugs' (alcohol, tobacco and marijuana) because of their predictive relationship to the use of substances such as cocaine, later in life (Kandel and Logan 1984; Catalano *et al.* 1991). Hansen *et al.* (1988) reported on a randomised controlled trial of two school curricula aiming to prevent the onset of alcohol, tobacco and marijuana use in 7th grade students. One curriculum focused on social pressure resistance training, the other one on affective education. The programmes were balanced on aspects of teaching strategies, for example, both included the use of peer leaders, didactic presentation, and active student involvement. The social curriculum which included addressing peer, parental, and mass media influences to substance abuse, was reported to delay the onset and prevalence of alcohol, tobacco and marijuana use at 1 year follow-up. The affective education had an apparently harmful effect with increases in substance use becoming more pronounced over time in the intervention group as compared with the control group. The authors, however, indicated several limitations of the study including pre-intervention differences between groups and high attrition. A school-based programme tested in 30 schools and focusing on helping 7th and 8th graders to develop the motivation and skills to resist both marijuana and tobacco use, included a long-term follow-up of several years. The authors reported that once the lessons had stopped, the programme's effects on drug use stopped, though effects on cognitive risk factors (perceived consequences of drug use, normative beliefs, resistance self-efficacy, expectations of future use) persisted, many through to 10th grade (Ellickson *et al.* 1993). In the condition under which adults taught the lessons without involvement of the young people, the prior beneficial effects on beliefs largely eroded (Bell *et al.* 1993). It was concluded that continued reinforcement may be required to sustain positive programme effects.

An intervention model that uses multiple environmental influences might be required to obtain long-term changes in drug use by young people. These influences could be used to support and extend prevention skills learned initially in a school programme, and to promote a consistent community norm supporting non-drug use. A multi-community trial for primary prevention of alcohol, tobacco and marijuana use in young people including mass media, a school-based educational programme, parent education, community organisation and health policy components, was sequentially introduced into different communities during a 6-year period. Effects of this programme were evaluated through annual assessments of drug use in intervention schools compared to control schools. In the first 2 years, 22,500 students received the school-based educational programme with parental involvement in homework and mass media coverage. At 1 year follow-up, prevalence rates for substance use in 42 schools were significantly lower than in the control condition and the net

increase in substance use in intervention schools was half that of the control schools (Pentz *et al.* 1989).

If drug prevention programmes are to be successful, they must be targeted at high-risk population groups (Bell 1988). Important risk factors which are either predictive or associated with drug involvement in young people are: low school performance, school drop-out, and/or poor school bonding (Bry *et al.* 1982; Labouvie *et al.* 1990; Mensch and Kandel 1988; Newcomb and Harlow 1986; Newcomb *et al.* 1989). Eggert *et al.* (1994) reported on an experimental prevention programme targeted at potential school drop-outs, which did not label these young people as such because of the potential harm or self-fulfilling prophesy of such. The elective, semester-long Personal Growth Class, offered within the regular school curriculum, included a social network support component (i.e. group support, friendship development, school bonding fostered through positive teacher-student and peer group relationships) and a specific skills training course (i.e. self-esteem enhancement, decision-making, personal control, interpersonal communication). The authors reported a short-term effect : reduced problems and consequences related to drug involvement; improved school achievement; increased self-esteem; enhanced school bonding; and some effect on curbing progression from gateway drugs to hard drugs. The high risk control group showed fewer improvements and deterioration for some indicators.

## 8. Substance Abuse : tobacco

Cigarette smoking has been described as the greatest cause of preventable death and disability in developed countries today (Nakajima 1990; Peto *et al.* 1992). The earlier people start smoking regularly, the greater the risk to health in later life (US Department of Health and Human Services 1989). Without a decrease in current world-wide smoking rates, more than 200 million of today's young people will die from tobacco-related illnesses in later life (Bellow and Wayne 1992). Active smoking is not the only culprit; passive smoking is implicated as well (Michell 1990).

The UK has amongst the highest mortality rates in the world for all major smoking diseases; smoking accounts for 18% of all deaths and for over a third of all deaths in middle age (HEA 1991).

The Health of the Nation targets identified in 1992 included the reduction of smoking prevalence among 11-15 year olds by at least 33% to less than 6% by 1994. Although there has been an overall decline in smoking, the prevalence in 11-15 year olds was still 18% in 1993, suggesting a considerable unmet challenge for health promotion (Bolling 1994).

### **Research questions**

Research in this field has been mainly occupied with three questions: (1) why do young people start smoking?; (2) why do some of them continue smoking into adulthood?; (3) what can adults do to stop young people smoking? Most of the literature falls into descriptive studies of the risk factors associated with smoking, and health promotion approaches to smoking-prevention and smoking-cessation, mainly school-based. **Table 8** shows the number of studies in these two categories before 1990 and from 1990 onwards. Studies reporting an outcome evaluation of a smoking prevention/cessation programme formed 25% of the total before 1990 and 27% from 1990 onwards.

**Table 8** Number/percentage of types of health promotion studies in young people in the area of smoking before 1990 as compared to the period from 1990 onwards

|                     | <1990      | ≥1990      | Total      |
|---------------------|------------|------------|------------|
| Descriptive studies | 420 (75%)  | 146 (73%)  | 566 (74%)  |
| Outcome evaluations | 141 (25%)  | 54 (27%)   | 195 (26%)  |
| Total               | 561 (100%) | 200 (100%) | 761 (100%) |

### **Note**

This chapter includes sections on 'What do we know?' and 'Research gaps' because it is based on a systematic review (Oakley and Fullerton

1995) which has taken into account the methodological quality of intervention evaluations with the aim to identify the subgroup of 'sound' studies from which reliable conclusions about effectiveness can be drawn.

In view of the enormous amount of literature that now exists in the field of young people and smoking, the focus of this chapter is mainly on UK-based studies, except for the literature on risk- and protective-factors which also refers to the USA.

### ***Descriptive studies***

The National Survey of smoking in 1993 sampled 3,140 11-15 year olds in England and found an overall prevalence of 18%, with 10% being regular smokers (defined as usually smoking one or more cigarettes a week); a third of children had tried smoking by the age of 11. This level of smoking differed little from that found in 1982 (Bolling 1994). The 1990 OPCS survey revealed generally higher rates for Scottish than for English and Welsh secondary school students (West 1993). National data on smoking among children under 11 years are not available. However, many studies show that first experimentation with cigarette smoking occurs between the ages of 9 and 10 (Bellew and Wayne 1991; HEA 1992). The age of smoking onset has tended to decline over time (Flay 1992); the OPCS 1993 study showed that this decline had happened among girls (comparing 1992 and 1993) but not among boys. Most adult smokers took up smoking when they were at school (Michell 1990).

It is often difficult to compare findings from different studies. Definitions of smoking vary between studies : some compare smokers with non-smokers; some include other categories such as ex-smokers, triers, regular smokers, occasional smokers etc; the definition of 'regular smoker' also varies. Many of the large-scale surveys including a broad range of ages, do not analyse their results by age, but present aggregate data. This may obscure the different influences at different ages, and adds to the difficulty of comparing the results from different studies.

The only sound basis for intervening in young people's smoking behaviour is an understanding of the relevant social and other factors underlying smoking behaviour, as well as the knowledge of how young people themselves perceive the habit of smoking in the context of their lives. Identifying risk factors for teenage smoking has been the central focus of many studies. These have commonly used a quantitative approach, i.e. collecting data via structured and pre-coded questionnaires completed at school. This approach is problematic as it does not allow young people to provide their own accounts of the meaning of smoking, and it under-represents smokers who are three times as likely as non-smokers to be absent from school either because of school 'rejection' or because of illness (Charlton and Blair 1989). Only a few studies have involved in-depth interviews or focus groups, even fewer have involved both young people and adults, or have examined the meaning of smoking to young

people outside the school setting (Green *et al.* 1990,1991; Friedman *et al.* 1985; Albutt *et al.* 1993).

Little research has attempted to identify which factors may differentiate those young people who move from experimentation to a cigarette smoking 'career' from those who either experiment and do not progress to become smokers, or those who do not smoke at all. The protective factors which insulate young people from cigarette smoking and addiction remain under-researched. It could be argued that protective factors are merely the inverse of known risk factors, and that what protects young people from smoking behaviour is the absence of identified risk factors. The lack of research which focuses on the meaning of smoking to young people, and the potential interaction between risk- and protective-factors, suggests that such assumptions can not be made (Holland *et al.* 1996).

Smoking among young people is associated with low educational achievement and aspirations (Pierce *et al.* 1989; Goddard 1990), low social class (Oechsli and Seltzer 1984; Oakley *et al.* 1992), being white and female (Brannen *et al.* 1994; Michell 1990), having smoking parents and/or siblings and/or friends (Conrad *et al.* 1992), low self-esteem (Stacy *et al.* 1992), the development of sociability outside the home, and dissatisfaction and stress (Brannen *et al.* 1994). Smoking may cluster with other adverse health behaviours, such as alcohol and drug abuse, poor diet and low levels of exercise (Franzkowiak 1987; McNeill *et al.* 1988; Gray 1993). Children and young people have been shown to be sensitive to the effects of cigarette advertising (MacAskill *et al.* 1992; Piepe *et al.* 1988). Smoking may also function as a 'gateway' drug for some young people (Scheier and Newcomb 1991; Fleming *et al.* 1983). Different risk factors are associated with different stages in young people's smoking 'careers' (Flay 1992). The role of smoking in weight control is particularly important to young women (Ogden and Fox 1994). Young people who exercise are less likely to smoke (Rantakallio 1983).

One very clear message that comes out of the research is that knowing about the health effects of smoking does not act as a deterrent for smoking (Oei and Fea 1987). Young people do not smoke because they are ignorant of its health effects (MacAskill *et al.* 1992; Michell 1990; Oakley *et al.* 1995; Penny *et al.* 1988). Young people have ambivalent feelings towards smoking; often their ideas are neither wholly positive nor negative, but mixed. Smoking is seen as harmful to health, but also as marking a 'cool' adult image (Albutt *et al.* 1993). Young people may also experience themselves as addicted to cigarettes in the same way as adults (Eiser *et al.* 1987). An essential context for understanding the role of knowledge in young people's smoking behaviour is their attitudes to health in general. Asked to rate the three most important things in life, young people in the London Young People, Health and Family Life Study put love first, followed by a happy family and health (Oakley *et al.* 1992). While their own and others' health may give some cause for concern, it was not high in young people's 'worry' list. Cancer and heart attacks as illnesses related to smoking are important worries for only 14% and 9% respectively, of young women, and 26% and 3% respectively, of young

men. By contrast, 51% of young women and 61% of young men worry about death; 51% of women and 40% of men worry about unemployment; 41% and 38%, respectively, worry about destruction of the environment; and 33% of women and 38% of men worry about nuclear war, a threat that may seem quite distant to many health educator. Similar findings have been reported by other researchers (see e.g. Gillies 1989a). These figures indicate quite a high degree of anxiety among young people about aspects of their future. There is evidence that smoking is highest among young people who feel they have least control over factors such as those which affect their health and life in general (Townsend *et al.* 1993).

Many studies have investigated the influence of peers in young people's smoking behaviour (see e.g. Aitken 1980; Biglan *et al.* 1983; Flay *et al.* 1985; Friedman *et al.* 1985; Hover and Gaffney 1988; Kandel and Logan 1984; Krohn *et al.* 1986; McAlister *et al.* 1979; Penny *et al.* 1988; Pederson *et al.* 1983; Chassin *et al.* 1986; Presti *et al.* 1992; Skinner *et al.* 1985; Swan *et al.* 1990). In a review of 27 prospective studies since 1980 which have focused on smoking predictors, Conrad and colleagues (1992) found that peer and parental influence were among the most consistently supported predictive variables. Peers are important both in the initiation and maintenance of cigarette smoking. The variables relating to peer influence which predict teenage smoking most consistently are the number of friends who smoke, the percentage of older siblings who smoke, and intention to smoke in the future (McCaul *et al.* 1982; Meier 1991). Some research suggests that an important variable mediating the influence of peers is self-efficacy or self-esteem, with those young people perceiving themselves to have more control over their destinies being less likely to smoke, even if they have smoking friends (Stacy *et al.* 1992).

While many studies have reported evidence for the effects of peers on young people's smoking, few have attempted to unravel the *meaning* of peer influence. In a longitudinal study, Fisher and Bauman (1988) found that most of the variance in smoking was accounted for by the fact that young people select their friends on the basis of shared behaviour. Studies by Mosbach and Leventhal (1988) and Sussman *et al.* (1994) found that identification with a specific group which condoned smoking increased the likelihood of young people becoming smokers. Morgan and Grube (1991) distinguished 'best friend' influences as the most important for smoking behaviour, followed by other good friends and same-age peers. Van Roosmalen and McDaniel (1989) found that having a best friend who had tried smoking was a stronger predictive factor for male smoking than it was for female smoking.

Two main features of possible parental influence on young people's smoking have been studied - parental attitudes and parental behaviour. These have often been measured as separate variables. Numerous studies have found parental *attitudes* to smoking and other substance use to be as, or more important than parental *behaviour* (see eg Donato *et al.* 1994; Eiser *et al.* 1989; Newman and Ward 1989; Nolte *et al.* 1983; McDermott 1984). Conversely, McNeill *et al.* (1988) in a prospective study in the UK found no evidence for the predictive value of parental smoking



behaviour or attitudes when other variables were controlled for. Sibling smoking appears to be a more powerful predictor than parental smoking (Bolling 1994; Lader and Matheson 1990; Swan *et al.* 1990; MORI 1991). Young people with brothers or sisters who smoke are more likely than others to smoke themselves, irrespective of whether or not their parents smoke (Bolling 1994). Girls may be particularly influenced by same sex sibling smoking (Oakley *et al.* 1992). As with the relationship between smoking and parental influences, processes to do with direct modelling, as well as those relating to shared social and material environments are likely to be involved.

The single most important theme to emerge from the research in this area is that of gender differences; smoking rates are different for young men and women. Several studies have found that while the typical young female smoker is likely to be self-confident, socially skilled and extrovert, young male smokers tend towards a lack of social skills, using smoking as a social aid, and as a signifier of masculinity (Gritz 1984; Urberg and Robbins 1981; Clayton 1991). In a study using a cognitive developmental model, Gilchrist *et al.* (1989) examined the different social and psychological functions that smoking may have for males and females. Some of the gender differences may stem from the more rapid development of girls in middle 'adolescence'; female teenage smokers are generally perceived as more attractive than non-smokers by opposite sex peers, whereas this does not hold true for male smokers of the same age (Barton *et al.* 1982). The social meanings of being a young woman and being a young man in today's culture are not the same. There remain systematically structured differences between the social positions of men and women in general. This has crucial significance for the development of effective smoking prevention and cessation programmes, which need to be based on an appreciation of the differential relevance of risk and protective factors to young women and young men.

It has been hypothesised that women may be more sensitive to the physiological effects of nicotine, and that this may have played a part in their historically low rate of smoking, as higher nicotine sensitivity means more nausea when smoking is first tried. According to this argument, the introduction of low yield cigarettes may have made it easier for women to acquire the smoking habit, while their greater sensitivity to nicotine may make cessation more difficult, because of the more severe withdrawal symptoms. The figures for cessation rates in the USA in the 1960s and 1970s appear to bear this out. However, as many men quit cigarette smoking in favour of pipe or cigar smoking, and as figures for other periods and other cultures tell a different story, it would appear that inherent physiological differences have little role in explaining different levels of smoking in men and women (Waldron 1991).

Tobacco companies spend an estimated £125 million per year on the advertising and promotion of their products (Townsend 1993). Government grants to the tobacco industry are worth a significant amount: over £27 million between 1979 and 1990. Only a small proportion (0.1% in 1988-1989) of Treasury earnings from tobacco sales is invested

in anti-smoking campaigns (Ferguson and McKinlay 1991). While a voluntary code of practice prevents advertising aimed specifically at children, there is evidence that cigarette advertising has a considerable impact on children and young people (Joossens 1989). While it is difficult to establish a causal relationship between cigarette advertising and the initiation of smoking among young people, those who smoke tend to smoke the most heavily advertised brands. In the USA, peaks in smoking initiation rates among young women under 18 years of age coincided with the launch of major advertising campaigns targeted at women (Reid *et al.* 1994). A recent study by Botvin and colleagues (1993) in the USA found that young people with high exposure to cigarette advertising were significantly more likely to be smokers than those with low exposure. Most significantly, the proportion of teenagers who report awareness of cigarette poster advertisements is far higher than the proportion who recall any health promotion advertising (HEA 1993a). A 10% drop in smoking prevalence with a total advertising ban has been estimated (Townsend 1993). However, the effects of a ban may vary cross-culturally. Direct advertising was banned in Finland in 1978, but teenage smoking prevalence subsequently rose (Rimpele *et al.* 1993). It has been suggested that one reason for this is that tobacco is seen as a health issue which has now been solved. An advertising ban supported by continued anti-smoking media messages might be more effective (Reid *et al.* 1994).

### **Health Promotion Interventions**

There have been a number of reviews of the effect of different interventions to prevent smoking (Flay 1985; Snow *et al.* 1985; Oei and Fea 1987; Best *et al.* 1988; Bonaguro and Bonaguro 1989; Kozlowski *et al.* 1989; Silvestri and Flay 1989; Binyet and de Waller 1993; Bruvold 1993; Michell 1994; Reid *et al.* 1994; Slama 1994). A major problem is that the reviews cover different universes of studies. For example, in two reviews published in 1985 (Flay 1985; Snow *et al.* 1985), a total of 25 studies are cited, but only 3 of these overlap between the reviews. BiblioMap, the EPI-Centre bibliographic database of health promotion studies, however, identified 70 relevant studies which could have been included in those reviews. This implies that -at least some, reviews seriously under-report the overall available evidence.

Most anti-smoking interventions have been school-based. However, it is difficult to draw reliable conclusions about the effectiveness of these programmes because evaluation design has generally been very poor (Bruvold 1993; Slama 1994). A review by Oakley and Fullerton (1995) found that only 19 (25%) out of 77 outcome evaluations identified were methodologically 'sound' (i.e. employing a control/comparison group equivalent to the intervention group on socio-demographic and baseline outcome variables; and reporting both pre- and post-intervention data for each group on all outcome targeted ); and only 5 (26%) of these 19 'sound' studies reported an *effective* intervention.

Three major smoking education programmes designed by the Health Education Authority were implemented in schools in England: 'My Body', 'Smoking and Me' (SAM), and the 'Family Smoking Education' (FSE) project. The SAM and FSE projects are based on prototypes developed in the USA and Norway, respectively. All programmes are interactive rather than didactic in style with an emphasis on the need to encourage decision-making and refusal skills. None was evaluated before being introduced widely. Subsequent evaluation of the 'My Body' programme has shown little evidence of benefit (Murray *et al.* 1984; Murray *et al.* 1982; Gillies 1989b). An evaluation of the SAM and FSE projects showed no significant impact on smoking behaviour, or health knowledge, beliefs and attitudes (Nutbeam *et al.* 1993). Similarly, evaluations of a parallel Scottish programme 'Jimmy on the road to super health' have shown little conclusive evidence of any effect (Calman *et al.* 1985).

The importance of a peer-led element in programmes successful in reducing substance use in young people has been highlighted in some studies (Oei and Fea 1987; Tobler 1992). It has been suggested that peer education as an approach is more likely to work with young people who regard peers as the main influence on their smoking behaviour, as compared with young people who seem more influenced by 'adult' significant others (Aitken 1980).

Many smoking intervention strategies have focused on young people's individual level of thinking and behaviour (Botvin and Eng 1982). This focus is, however, potentially limited given the evidence for the central role of peers, parents and the social environment in young people's behaviour (Kozlowski *et al.* 1989). More recent smoking prevention programmes have emphasized the acquisition of assertiveness skills and skills to resist peer pressure. However, it could be argued that any skill-based programme is still grounded in a model of risk in which the individual is solely responsible for his/her ability to resist smoking. For prevention programmes to be effective, the wider socio-cultural determinants of young people's smoking behaviour must be taken into account.

The evidence for the impact of no-smoking policies is mixed. Some studies suggest an effect of school smoking bans on young people's smoking (Cooreman and Perdrizet 1980; Pentz *et al.* 1989), while others report no effect (Clarke *et al.* in press). Associations between teachers' and pupils' smoking behaviour have been widely reported (Murray *et al.* 1984; Rohrbach *et al.* 1993), suggesting that bans on teacher smoking may have some effect on young people's behaviour (Chesterfield-Evans 1994). Smoking teachers however, are notoriously resistant to the idea that smoking should be totally banned in schools (Nutbeam 1987). It is probably important to include non-teaching staff for maximum effect (HEA 1993b).

There is growing international consensus that any short-term benefits attributable to soundly evaluated smoking education programmes are not maintained in the longer term. Long term follow-up studies of the

promising North American and Scandinavian programmes show that any initial smoking reduction disappears over time (Flay *et al.* 1989; Murray *et al.* 1989). A 10 year follow-up of the Oslo Youth Study reported no significant effect on smoking prevalence between intervention and control groups except among young men who were not smoking before the programme started (Klepp *et al.* 1993); at the 12 year follow-up there were no differences in smoking rates at all (Klepp *et al.* 1994). In Finland, a two-year smoking prevention programme for high school students found an effect immediately after intervention *and* after 4 years (Vartianen *et al.* 1986); but the differences in smoking prevalence were reduced at 8 years and did not persist at the 15 year follow-up (Vartianen *et al.* 1994).

After a decade of school-based programmes which were widely implemented because it was thought they *should* work, many people now regard them as ineffective. Consequently, there has been a move towards community-wide approaches. However, the evaluation of most of these alternative approaches has suffered from even poorer evaluation standards than the school-based studies (Morgan *et al.* 1994; van Teijlingen and Friend 1993). There has been some work in general practice settings; but this has not looked at effectiveness issues at all (Townsend *et al.* 1991). In addition, there is little evidence that young people respond positively to anti-smoking messages conveyed by the mass media (Catford *et al.* 1984).

### **What do we know?**

It is obvious that even after 20 years of research, with some progress in research design and programme development, the question, 'what works?' remains largely unanswered. We know something about what does *not* work, but we are still a long way from knowing which components are vital to a successful programme, and which may be merely decorative or actually counter-productive.

School health education, especially if carried out in isolation, is one of the weaker options available in the attempt to reduce young people's smoking behaviour. Evidence from well-designed evaluations is that the impact of school-based approaches is limited to young people at low risk (Glynn *et al.* 1991) and that at best, they delay slightly the onset of experimental smoking, and at worst they may increase it. There is no evidence for any long-term effect.

The most promising approaches are programmes aimed at young people and adults together in broadly-based community campaigns supported by favourable fiscal policies, restrictions on smoking at work and schools, and a ban on tobacco advertising. This recommendation is supported by evidence from the 'Minnesota Heart Health Program' which reported a significant long-term reduction in young people's smoking prevalence, attributable to the embedding of a school programme in a comprehensive, community-based initiative (Perry *et al.* 1992).

One fundamental flaw in most existing prevention programmes for young people is the assumption of a homogeneous 'adolescent' culture. Young people are not all the same. Successful health promotion entails recognising a wide diversity of needs, experiences, situations and probable responses. Moreover, health educators need to bear in mind that, despite the current concern about smoking rates among young people, most of them do not smoke, and smoking education is a matter of maintaining the status quo (Nutbeam 1988).

Although a good deal of qualitative research has been carried out, there has been little attempt to marry the insights derived from this with the pursuit of answers to the question, 'what works in the field of smoking prevention for young people?' (de Vries *et al.* 1992). The qualitative researchers plough their particular field and the intervention researchers theirs, and very little cross-fertilisation of approaches has taken place.

Data from qualitative studies show that young people are aware of the health risks of smoking, but many are more concerned about other problems. Knowledge about the health risks of smoking is unassociated with different smoking rates; those young people who know most are *not* less likely to smoke (Penny *et al.* 1988). Smoking is not a random health-related behaviour. There is some evidence that smoking is highest among young people who feel they have least control over factors which affect their health and life in general (Townsend *et al.* 1993). Smoking is linked in systematic ways to aspects of the social structure, including class, ethnicity, the gender division of labour, and family power relationships. This suggests that policies aimed at improving young people's situation more generally might help to reduce smoking prevalence.

### **Research gaps**

There is a widespread neglect of qualitative studies which tap young people's needs, views and experiences, both for their intrinsic value and as data collected to inform the design of anti-smoking interventions. More research on young people's views is needed and should recognise that young people are not a homogenous group. Different approaches to smoking reduction may be needed, particularly for young women.

There is a general need in developing anti-smoking interventions to distinguish the different developmental stages in smoking adoption: preventing initial attempts, encouraging negative associations for initial attempts, and retarding regular use. As experiences of the first cigarette are usually described as unpleasant, this would seem to be a process that could or should be particularly targeted. The factors which may protect young people from becoming smokers are also under-researched.

The importance of parental smoking attitudes and behaviour in predicting whether or not young people will take up smoking suggest a need for more work in this area.

Very little research has looked at the role of schools themselves, despite the fact that prevalence rates are known to vary widely between different schools in the same community.

The social correlates of smoking among young people suggest that policies aimed at improving young people's situation more generally might help to reduce smoking prevalence. Broader approaches spanning school, home and the community and supported by comprehensive anti-smoking fiscal, legislative and social politics may be needed to address the smoking problem among young people.

A systematic review of tobacco control interventions for young people is urgently needed. The newly registered Cochrane Collaborative Review Group on Tobacco Control will provide the best basis for moving forward in terms of research, policy and practice in the field of young people and smoking prevention.

## **DISCUSSION**

The discussion draws on all previous chapters.

The fact that many behaviours, both adverse and beneficial to health, are adopted during young life and continued into later life; and the concern over immediate and long-term risks to the health of young people have prompted an increase in health promotion interventions targeted at this age group.

It is clear from the literature surveyed in this report that different risk- and health-behaviours are interlinked. Some examples are: approximately one in three young people who commit suicide is intoxicated or under the influence of drugs at the time of death; the positive effects of physical activity on mental health, as well as on morbidity and mortality from chronic diseases is well-established; in addition to their contributions to chronic diseases, alcohol and tobacco have been implicated as important 'gateway' drugs to the use of substances as cocaine, amphetamines, barbiturates and opiates. However, these links are not well reflected in the targets set by The Health of the Young Nation Programme. Firstly, specific targets related to young people only occur in the areas of accident prevention and sexual health promotion. Secondly, other areas are covered more generally in the Health of the Nation targets. For example, targets are set for overall mental health, though it has been acknowledged that children and young people are vulnerable to mental disorders, which if untreated, may have serious consequences in adult life. Improving the mental health of young people should also be an end in itself and not merely a means of improving adult functioning. Thirdly, some areas are not covered at all in terms of target setting (e.g. physical activity, alcohol- and drug-abuse). Fourthly, there is some confusion about priority areas. Despite publicity on the widespread use of illicit drugs, it is tobacco and alcohol-use that exacts the greatest public health toll in terms of associated mortality and morbidity. Whereas tobacco-use results in chronic diseases that manifest in later life, the health consequences of alcohol use are evident during 'adolescence'.

Many interventions have been and still are school-based, and involve an indiscriminate group of students, though more appropriate targeting is often required. Risk behaviours tend to cluster in vulnerable young people and it is also important to note that those young people at highest risk of adverse health outcomes, are those least likely to be regularly attending school.

The adult perspective tends to see young people as a homogenous group. This seriously downplays the importance of class, gender, sexuality, disability and cultural differences in influencing the experiences and needs of different subgroups of young people, and is unhelpful when it comes to planning health promotion activities. Different groups of young people may require different intervention strategies.

There are important gender differences in substance use; participation in physical activity; risk perception; attitudes and views; and preferences with respect to health-related issues. Despite their attraction to the opposite sex, young people continue to spend much of their free time in the company of same-sex peers; and their own gender is more likely to serve as the reference group for social influence. These findings indicate the need to target young men and women differently and to provide separate interventions.

There seem to be major discrepancies between the results from health-related research and policy implementations. For example, the major rationale for promoting physical activity in young people is to establish patterns of regular activity that can be maintained throughout life. However, within the school curriculum competitive team sports predominate even though research has indicated that many young people and especially young women are discouraged from participating in competitive games, and that they do not seem to transfer to out-of-school participation in exercise.

It is clear that for many of the health areas a comprehensive approach is necessary and wider societal issues have to be addressed. For example, research has documented the relationship between long-term unemployment and mental health problems. Another example are studies that have indicated that dieting and body image distortion precede and/or contribute to the development of eating disorders; hence, it seems important to encourage a healthy weight management through physical activity and a healthy diet, which in turn are linked to improved mental health. Young people's experiences depend on family, cultural and socio-economic circumstances, as well as on the prospect of training, employment and opportunity in general. Consideration should be given to any possible local means of improving young people's situations as an effective way of achieving the desired outcomes of many risk-reduction interventions.

It is also important to promote a climate of consistent societal norms. Societal norms for tobacco- versus alcohol use differ significantly. Over the past two decades, there has been a considerable shift towards non-smoking, but this normative shift is not prominent or unambiguous with relation to alcohol use, with the exception maybe of drink-driving. The mass media transmit pro-drug/alcohol messages and have also been implicated as contributing to the increase in the prevalence of eating disorders by promoting the cultural milieu in which thinness is an expectation for women. Governmental attitudes with respect to the profitable market for alcohol and tobacco and the effect of advertising on young people especially, have been criticised.

It becomes evident that health promotion interventions limited to one particular setting or focused on one particular area of interest, are unlikely to have a long-term impact if any, on health. Interventions have to be multi-faceted and involve a wide variety of agencies; they have to take into consideration the relationships with socio-demographic characteristics



of risk exposure and general choices and opportunities. For this type of health promotion intervention to be successful and cost-effective, a long-term political commitment is needed.

### ***Methodological issues***

Findings from evaluated interventions have been contradictory. This reflects both the diversity in the methodological quality of the studies and in the types of interventions tested. Though the prevalence and methodological quality of evaluations of health promotion interventions seem to be improving, many programmes have received wide dissemination with no evidence for their effectiveness. Moreover, many new interventions are still being implemented without concurrent evaluation and many evaluations still have a non-rigorous design. Together this leads to a continued duplication of effort and waste of human and financial resources.

Those who want to search for an answer to the question 'what works in health promotion?' are faced with many obstacles : (1) locating primary prevention studies by means of electronic databases is highly unspecific; (2) most health-related research is non-interventional and non-evaluated; (3) the quality of reporting is often low; and (4) many outcome evaluations have methodological limitations with the implication that the conclusions presented by the authors are not reliable.

Narrative reviews devoting a paragraph to each of numerous intervention programmes describing different programme strategies, target populations, outcome measures, intensities, implementations and research designs, often leave the reader confused. It is difficult, if not impossible, to draw generalisable conclusions about the effectiveness of those programmes, and the larger picture of the effects of broadly similar programmes may only be obtained by aggregating the results across many studies i.e. by performing a meta-analysis.

The advantages of meta-analysis are well-known. Research results are coded for outcomes as well as programme and population characteristics and differences across studies become very valuable pieces of information. Ineffective programmes may have similar intervention components; successful programmes may be more effective if delivered at a certain age. However, the meta-analyses identified in this document often did not make their inclusion/exclusion criteria transparent enough to judge their quality and hence the reliability of the evidence presented.

### ***Major research gaps seem to be :***

- The relationships between what research identified as young people 's needs, what young people want themselves and what is being provided. Although research indicates that young people are interested in health matters, this is only as far as it relates to their relationships, their chances of employment, their feelings of self-esteem, their concerns

about poverty and about the environment, -all of which may, at different times, be much more important than any immediate health concerns.

- Interventions are often targeted at young people ignoring their surroundings. More research is needed into the attitude and influences of for example, adults as gatekeepers.

- Many evaluations of health promotion interventions have looked at impact in the short-term only. Whether changes are sustained in the long- term is largely unknown.

- In addition to outcome measures, it is important also to collect information on the processes involved in interventions with the aim to not only demonstrate whether a programme works but also how and why. This is particularly important with respect to the fact that most (well) evaluated health promotion work has been carried out in the USA, of which the conclusions are not necessarily applicable to the UK.

- The literature on research in young people focuses on personal responsibility. It often fails to mention gender, race and ethnicity and therefore obscures power relations and processes of racialisation and gendering. The production of knowledge about specific groups of young people is often treated as general and there is overall a lack of insider perspective (Phoenix 1995). There is a need for a more complex thinking about young people's lives and more comparative work on gender, race and ethnicity using standardised measures.

## **CONCLUSION**

Though a vast number of health promotion-related studies have been carried out in young people, it seems that the majority have addressed health issues in isolation of wider societal and political influences and have been restricted to a particular topic area rather than addressing commonalities and cross-influences between different health- and risk-behaviours.

The majority of studies have been descriptive rather than evaluated interventions. In addition, reviews based on the assessment of the methodological quality of evaluations have indicated that many have methodological limitations, hence the conclusions are not reliable. This means that the evidence-base for health promotion in young people, despite great enthusiasm, effort and commitment, is still relatively small.

## RECOMMENDATIONS

The recommendations attempt to address the overall issues as identified throughout the report.

With the aim of promoting a climate for evidence-based health promotion, we need :

- (1) to extend searches :
  - (a) to identify outcome evaluations of health promotion interventions which have the potential to answer the question 'what works in health promotion?'. With outcome evaluations being such a small proportion of health promotion studies overall, and with the difficulties in selecting these electronically, effort should also be focussed on handsearching of key journals. In addition, unpublished materials need to be sought;
  - (b) to identify descriptive studies which can help us to understand why particular interventions are more likely to be effective than others; and the links between different health- and risk behaviours. In addition, descriptive studies can guide us in the design of new and more integrated interventions;
- (2) to assess the methodological quality of outcome evaluations before drawing on their conclusions;
- (3) to carry out systematic reviews, including meta-analyses, for those areas for which there seem to be a high number of well-designed and executed controlled trials. These reviews might be able to give more conclusive evidence about programme strategies that might work across different areas of health promotion;
- (4) to carry out more narrative reviews based on the methodological quality of studies, including a detailed classification of programme and participant variables with the aim to identify pointers to success and research gaps; and to carry out rigorous evaluations of promising interventions for those areas where the number of 'sound' evaluations is currently limited;
- (5) to update the literature searches and reviews to take into consideration new emerging evidence;
- (6) to carry out rigorous evaluations in the UK of interventions which have shown to be effective elsewhere.

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## APPENDIX 1 : SEARCH STRATEGIES

For all searches : no language limitations, no publication type limitations, full year range available

**BiblioMap** (*bibliographic database of The Centre for the Evaluation of Health Promotion and Social Interventions (EPI-Centre), London*)

Search 1 : sexual health **and** young people

Search 2 : tobacco **and** young people

**EMBASE** (*on-line*)

Year range available : 1984-1995

Unless otherwise stated the terms used are 'associated' terms; (expl) = exploration term.

The searches were carried out using the index terms as 'keywords only'.

Search 1 (population) :

adolescence (expl) *or* adolescent (expl) *or* child behavior (expl) *or* college *or* college student *or* high school *or* school (expl) *or* school health service *or* student *or* university

Search 2 (health promotion) :

behavior modification *or* health behavior (expl) *or* health education (expl) *or* health promotion *or* heart infarction prevention *or* infection prevention *or* primary prevention *or* risk management

Search 3 (mental health) :

(Anorexia nervosa *or* bulimia *or* coping behavior *or* depression *or* emotional stability *or* emotional stress *or* feeding disorder *or* life satisfaction *or* mental stress *or* relaxation time *or* relaxation training *or* self esteem *or* self injurious behavior *or* suicide) **and** (search 1) **and** (search 2)

Search 4 (nutrition) :

(child nutrition *or* body image *or* eating habit *or* feeding behavior *or* weight reduction) **and** (search 1) **and** (search 2)

Search 5 (physical activity) :

(breathing exercise *or* dynamic exercise *or* exercise tolerance *or* fitness *or* leisure *or* physical activities (expl) *or* physical education *or* recreation) **and** (search 1) **and** (search 2)

*Search 6 (substance abuse) :*  
(addiction (expl) or alcohol abstinence or alcohol abuse (expl) or alcohol intoxication or cannabis or cannabis addiction or cocaine or drinking or drinking behavior or drug abuse (expl) or drug dependence (expl) or glue sniffing or heroin dependence or morphine addiction or multiple drug abuse or narcotic dependence (subs. expl) or opiate addiction or opiates or psychedelic agent or street drug or substance abuse) **and** (search 1) **and** (search 2)

**Medline (CD-ROM)**

Year range available: 1983 - 1995

*Search 1 (population) :*  
adolescence or adolescent-behavior or adolescent-health-services or schools or school-health-services or students

*Search 2 (health promotion) :*  
attitude-to-health or health-behavior or health-education or health-promotion or knowledge-attitudes-practice or life-style or patient-education or primary-prevention or risk-management or risk-taking

*Search 3 (mental health) :*  
(adaptation-psychological or anorexia-nervosa or bulimia or depression or eating-disorders or mental-health or self-injurious-behavior or stress or stress-psychological or suicide or suicide-attempted or unemployment) **and** (search 1) **and** (search 2)

*Search 4 (nutrition) :*  
(adolescent-nutrition or diet-surveys or diet-records or diet-reducing or feeding-behavior or food-habits or food-preferences or nutrition-surveys) **and** (search 1) **and** (search 2)

*Search 5 (physical activity) :*  
(exercise or leisure-activities or physical-education-and-training or physical-fitness or recreation or sports) **and** (search 1) **and** (search 2)

*Search 6 (alcohol abuse) :*  
(alcohol-drinking or alcohol-intoxication or alcoholism) **and** (search 1) **and** (search 2)

*Search 7 (drug abuse) :*  
(behavior-addictive or designer-drugs or drug-and-narcotic-control or substance-abuse or substance-abuse-intravenous or substance-dependence or street-drugs or substance-use-disorders) **and** (search 1) **and** (search 2)



**Database of the National Adolescent and Student Health Unit  
(Oxford)**

Scope : adolescent and student health (10-24 years olds)

*Search 1 :* depression *or* eating disorder *or* mental health *or* stress  
*or* suicide

*Search 2 :* nutrition

*Search 3 :* physical activity

*Search 4 :* alcohol *or* drugs *or* substance abuse

**HealthPromis (Health Education Authority, London)**  
(carried out by HEA staff)

*Search 1 :* intervention\$ **and** (adolescents *or* young adults)

*Search 2 :* intervention\$ **and** children *not* (adolescents *or* young  
adults)

*Search 3 :* intervention\$ **and** (key stage 3 *or* key stage 4)

*Search 4 :* health **and** young nation