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Editorial

Multiple risk behaviour in adolescence

The onset of multiple risk behaviours, such as smoking, anti-social behaviour, hazardous alcohol consumption and unprotected sexual intercourse, cluster in adolescence[1–6] and are associated with increased risk of poor educational attainment, future morbidity and premature mortality.[7] These behaviours go beyond pure 'risk-taking' behaviours and embrace behaviours which are ubiquitous in society, such as low levels of physical activity. These behaviours shape adult behaviour and the consequences are costly to society and young people. Further, people who engage in any one risk behaviour are likely to engage in others,[8–10] there may be shared biological and environmental factors which influence the development of these multiple behaviours, and so prevention and treatment interventions may impact on more than one outcome.[1]

The articles in this supplement are from a symposium on multiple risk behaviours in adolescence, hosted by the University of Bristol in 2011 and supported by the Centre for the Development and Evaluation of Complex Public Health Interventions. The symposium considered the causes and consequences of multiple risk behaviours and the evidence for preventing or reducing the impact of these behaviours within a public health context. A broad definition of multiple risk behaviours is 'more than one behaviour directly or indirectly associated with health, well-being and the healthy development of personality'.[11] The articles present the prevalence of these behaviours with a focus on alcohol and assets (the protective factors that create health and well-being), the policy perspective and an overview of prevention interventions and the importance of parenting.

Spring *et al.* highlight the interaction and prevalence of risk and protective behaviours in adolescents and adults with a focus on unhealthy diet, cigarette smoking, substance abuse and engaging in risky sexual behaviours in contrast with protective behaviours. Engagement in multiple risk behaviours increases not only through the teenage years, but also through adulthood. Smoking at age 11, early onset of other substance use, male gender, low academic performance and ethnicity account for 51.2% of the variance in 16 risk behaviours at age 16.[4] In adults, the clustering of unhealthy behaviours in the USA is more likely in men, is related to lower levels of education and increase with age.

Hale and Viner provide the historical and current context. Since the mid-twentieth century in developed countries, the burden of disease has shifted from diseases of early childhood to adolescents. Hale and Viner identify that the high prevalence of many risk behaviours presents challenges to legislative and policy responses. Possible mechanisms are presented, including the gateway model, reverse gateway and single syndrome of behavioural risk. Hale and Viner identify gaps in the research including a lack of studies assessing effectiveness of interventions, poor understanding of causal pathways and the need to understand how trends in multiple risk behaviours change over time and their temporal order.

MacArthur *et al.* present analysis of the patterns of multiple risk behaviour by gender during adolescence from the Avon Longitudinal Study of Parents and Children cohort study. At ages 15–16, there was a high prevalence of physical inactivity (74%) and hazardous drinking (34%). The prevalence of a number of risk behaviours varies by gender, with girls having higher engagement in tobacco smoking, self harm and a lack of physical activity. In contrast, anti-social and criminal behaviours, cannabis use and vehicle-related risk behaviours were more prevalent among boys. There was little difference between the proportion of boys and girls engaging in more than four, or more than seven different risk behaviours at this age.

Jackson *et al.* give an overview of universal interventions to prevent the behaviours of tobacco, alcohol, illicit drug use and risky sexual behaviour. The interventions with the best evidence of effectiveness are those which simultaneously address multiple risk and protective factors, resilience, positive school environments and positive parent and family interactions. Broader societal factors, such as societal norms, need to be addressed; however, evidence of their impact can be elusive. Jackson identified that many interventions aimed at preventing multiple risk behaviours in adolescents involve parents. Chu *et al.* provide an overview of the role of parenting programmes during the adolescent years. There is evidence that an authoritative parenting style supports a healthy adolescent psychological development and reduces the engagement in risky behaviours such as delinquency and substance use. Parenting programmes during the adolescent period promote parents being supportive, involved, using communication and problem

solving as they relate to their adolescent children, and further, using conflict management, family rules, praise and being consistent. Parenting programmes are typically targeted at parents of adolescents with risk factors, but they suggest that a population approach is warranted.

Risk behaviours in adolescents are frequently framed with regard to both negative causal factors and consequences; however, Brooks *et al.* investigate the exposure to these behaviours from the perspective of the contribution of resources or assets being protective. Such assets include resilience, self-esteem and self-efficacy. Brooks *et al.* present analysis from the 2009/10 Health Behaviour in School Aged Children's Study data for England at age 15. They investigate whether assets are protective of exposure to drinking alcohol, smoking cigarettes, cannabis use and sexual risk. The domains of social capital (sense of belonging, autonomy and control and social networks) were found to be protective at the level of the community, school and family.

There is a common theme that an increasing focus on adolescence is warranted, with a need for research to understand the epidemiological, sociodemographic determinants and effectiveness of interventions. A key issue is how to focus a large research agenda on to the development and evaluation of interventions to prevent and manage risk behaviours in adolescents. Whilst many health interventions aim to prevent single behaviours,[12–14] little is known about the effectiveness of interventions aimed at the prevention of multiple risk behaviours in this group.[7,15] To inform this work, we will be undertaking two Cochrane Systematic Reviews of interventions for preventing multiple risk behaviours; firstly at individual, family, or school levels and secondly at the levels of policy, legislation and the media at community or population level. The research priorities identified include: appropriate categorization of risk behaviours, analysis of the epidemiology of these behaviours to understand causal pathways and trends; how to select behaviours for intervention and whether to intervene simultaneously or sequentially; whether to focus on promoting healthy behaviours or decreasing unhealthy behaviours; and interventions to assess the effectiveness of preventing or reducing multiple risk behaviours.

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