

Multiple adolescent risk behaviours should be targeted to prevent cancer risk in young adults

Dr Caroline Wright, Dr Jon Heron, Dr Ruth Kipping, Professor Matthew Hickman, Professor Rona Campbell and Professor Richard M Martin, University of Bristol

About the research

Cancer is one of the leading causes of death in the UK, accounting for just over a quarter of deaths in 2017. According to Cancer Research UK, 40% of cancer cases are linked to a combination of risk behaviours including [tobacco smoking, alcohol consumption, obesity, unprotected sexual intercourse and physical inactivity](#), behaviours which are also highlighted in the UK government's prevention Green paper, [Advancing our Health](#) (2020).

Experimenting is a normal part of growing up. However, these behaviours can become habits and set the pattern for a life characterised by unhealthy practices. We know that these kinds of behaviours often happen together but less is known about how this combination of behaviours in adolescence (age 11-18 years) are related to the same behaviours in young adults (age 24 years).

We examined data on tobacco smoking, alcohol consumption, obesity, unprotected sexual intercourse and physical inactivity on 6,531 participants from the [Children of the 90s](#) study. We looked at patterns of these behaviours between age 11 and 18 years. We tested associations with harmful drinking, daily tobacco smoking, nicotine dependence, obesity, high waist circumference and high waist-hip ratio¹ at age 24 years.

We found distinct groups of adolescents characterised by consistently high or consistently low engagement in cancer risk behaviours during adolescence. We also found that young people with the highest levels of risk during adolescence were more like to engage in cancer risk behaviours in early adulthood.

¹ High waist circumference and waist-hip ratio are supplementary measures of obesity that are known to be associated with cancer.

Policy implications

Our findings are presented in the context of the broader literature on interventions aimed at preventing risk behaviours such as tobacco smoking and alcohol consumption which are known to be associated with socio-economic background.

- Public health policies should focus on preventing multiple rather than single risk behaviours during adolescence as this would likely reduce these behaviours in early adulthood and beyond, thereby improving longer term health outcomes.
- Health and other professionals who have contact with adolescents, including teachers, sexual health clinicians, general practitioners (GPs) and public health workers, should address multiple rather than single risk behaviours, at each contact in line with the NHS's [Making Every Contact Count \(MECC\)](#) approach.
- Given the evidence from [Fair Society Healthy Lives, 2010](#) and the Cochrane systematic reviews, efforts at preventing these behaviours should focus on developing appropriate proportionate universalist school-based interventions.



Findings from the literature:

- Evidence shows that interventions which focus on those at greatest risk are less effective because they only tackle a part of the problem and targeting subgroups risks stigmatisation. Universal interventions aimed at individual behaviour change can increase health inequalities, because healthy/advantaged people are more likely to engage. Therefore, interventions that are universal, but with a scale and intensity that is proportionate to the level of risk (proportionate universalist), are preferable ([Fair Society Healthy Lives, 2010](#)).
- A [Cochrane systematic review \(2014\)](#) found that the World Health Organisation (WHO) health promoting schools' framework improves body mass index (BMI), physical activity, physical fitness and tobacco use. Another [Cochrane Systematic Review \(2018\)](#) demonstrated that universal school-based interventions are most effective in preventing adolescent alcohol use, tobacco smoking, illicit drug use and antisocial behaviour, and increasing physical activity. It did not find strong evidence of benefit for family or individual-level interventions.

Findings from our study:

- We found patterns in cancer risk behaviours across adolescence and early adulthood. Compared to participants who had engaged in the fewest risk behaviours, those who had engaged in the most behaviours as adolescents were:
 - five times more likely to have a nicotine dependency and smoke daily;
 - nearly five times as likely to be obese;
 - more than twice as likely to have a high waist circumference;
 - twice as likely to have harmful alcohol consumption; and
 - nearly twice as likely to have a high waist-hip ratio at age 24 years.
- We found that adolescents from lower socio-economic backgrounds were more likely to engage in cancer risk behaviours. Young adults from lower socio-economic backgrounds were more likely to engage in cancer risk behaviours, except for harmful alcohol consumption, where those from the higher socio-economic backgrounds were at the highest risk.

Further information

Wright CL. et al., (2020) Young adult cancer risk behaviours originate in adolescence: A longitudinal analysis using ALSPAC, a UK birth cohort study *BMC Cancer* 21, 365 (2021). <https://doi.org/10.1186/s12885-021-08098-8>

Langford R, et al. The WHO Health Promoting School framework for improving the health and well-being of students and their academic achievement. [Cochrane Database Syst Rev](#) [Internet]. 2014;(4).

MacArthur G, et al. Individual-, family-, and school-level interventions targeting multiple risk behaviours in young people. [Cochrane Database Syst Rev](#) [Internet]. 2018;(10).

Dr Caroline Wright is funded by a Cancer Research UK Population Research Postdoctoral Fellowship (C60153/A23895). Professor Richard Martin is supported in part by the National Institute for Health Research Bristol Biomedical Research Centre and a Cancer Research UK (C18281/A29019) programme grant (the Integrative Cancer Epidemiology Programme).

Based at the University of Bristol, [Children of the 90s](#), also known as the Avon Longitudinal Study of Parents and Children (ALSPAC), is a long-term health-research project that enrolled more than 14,000 pregnant women in 1991 and 1992. It has been following the health and development of the parents and their children in detail ever since and is currently recruiting the children and the siblings of the original children into the study. It receives core funding from the Medical Research Council, the Wellcome Trust and the University of Bristol.

Contact the researchers

Dr Caroline Wright, Senior Research Associate and Cancer Research UK Population Research Postdoctoral Fellow, University of Bristol. E: caroline.wright@bristol.ac.uk Twitter: [@DrCLWright](https://twitter.com/DrCLWright) [@BrisCancerEpi](https://twitter.com/BrisCancerEpi)