The effect of multiple risk behaviours (MRB) in adolescence on educational attainment at age 16: a UK birth cohort study

Dr Caroline Wright, Dr Ruth Kipping, Professor Matthew Hickman, Professor Rona Campbell, Dr Jon Heron, University of Bristol
What do we mean by MRB?

- More than one behaviour directly or indirectly associated with health, well-being and the healthy development of personality in adolescents *(informed by Hurrelmann and Richter, 2006)*.

- Includes behaviours associated with adverse impacts on health whether or not they involve active desire for ‘risk-taking’ or immediate gratification.
Risk Behaviours are prevalent and co-occur.

The majority of the adolescents did not meet dietary guidelines. Nearly 80% had multiple risk behaviors and only 2% met all four guidelines. The number of risk behaviors was high; over 95% ate less than five current smokers and 62% reported binge drinking. Only 2% had none.

Two-thirds of the sample had three or more risk factors. Being employed full-time, lower education level, less use of physical activity change strategies, and low levels of social support were associated with higher likelihood of having a greater total number of health risk behaviors.

Keywords: Overweight and obesity; Lifestyle risk behaviors; Women; Psychosocial correlates.
Rationale for researching adolescent MRB

- **Strategic:** many MRB start in adolescence

- **Efficient:** targeting one behaviour may lead to reduction in others

- **Cost effective:** targeting change in MRB may be cheaper
What we know about MRB…

- Tobacco smoking
- Risky sexual behaviour
- Alcohol
- Obesity/overweight
- Unhealthy diet
- Physical inactivity

Cancer
Heart disease
Stroke
## Why focus on educational attainment?

<table>
<thead>
<tr>
<th>Low attainment</th>
<th>High attainment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Smoke tobacco</td>
<td>• Increased aspirations</td>
</tr>
<tr>
<td>• Overweight/obese</td>
<td>• Life satisfaction</td>
</tr>
<tr>
<td>• Poor physical/mental health outcomes</td>
<td>• Healthy behaviours</td>
</tr>
<tr>
<td>• Reduced employment opportunities and earning potential</td>
<td>• Higher earning capacity</td>
</tr>
</tbody>
</table>

www.decipher.uk.net
Why this, why now?

- Very few studies consider large number of heterogeneous risk behaviours concurrently.

- No studies have examined engagement in multiple risk behaviours and educational outcomes.
Linked data

Avon Longitudinal Study of Parents and Children (ALSPAC):

• Prospective observational population-based study.
• Pregnant women residing in Avon, who had an estimated date of delivery 1 April 1991 and 31 December 1992.
• The sample ~13,000 slightly higher proportion of house owner-occupiers, smaller proportion of mothers from ethnic minorities.

National Pupil Database (NPD):

• Pupil-level data source which matches pupil and school characteristic data to pupil level attainment data in England.
• It is mandatory for all schools following the National Curriculum to contribute. Therefore, missing data re: most Independent schools.
MRB

- Physical inactivity
- TV viewing
- Car passenger risk
- Cycle helmet risk
- Scooter risk
- Criminal/ASB
- Self-harm
- Alcohol consumption
- Tobacco smoking
- Cannabis use
- Other illegal drug use
- Penetrative sex before age 16 years
- Unprotected sex

Confounders

- Gender
- Month of birth
- Parental social class
- Maternal education
- Household income
- Housing tenure
- FSM
- IQ score at age 8
- Previous educational attainment

Educational attainment

- Capped GCSE score
- ≥5 GCSE A*-C
MRB and educational attainment

Unadjusted model:

- Reduction of 9.17 GCSE points (CI: -10.25, -8.10, p<0.001) - 1.5 grades in one subject.
- Odds of attaining five or more A*-C grades were reduced by 18% (CI: 15-21%, p<0.001) for each additional risk behaviour.

Fully adjusted model:

- Reduction of 6.31 GCSE points (CI: -7.03, -5.58, p<0.001) - 1 grade in one subject.
- Odds of attaining five or more A*-C grades were reduced by 23% (CI: 19-26%, p<0.001) for each additional risk behaviour.
ALSPAC Risk behaviours at age 15 and 16

MRB Frequency (%)
ALSPAC Risk behaviours at age 15 and 16

For an average cohort member this would be 18.93 GCSE points (3 grades)
Summary

- Strong evidence of association between MRB and educational attainment
- Identification and targeting
- Important linear relationship
- Preventing MRB could improve education
What next for this research…
Other MRB research
Acknowledgements

ALSPAC

We are extremely grateful to all the families who took part in this study, the midwives for their help in recruiting them, and the whole ALSPAC team, which includes interviewers, computer and laboratory technicians, clerical workers, research scientists, volunteers, managers, receptionists and nurses. The UK Medical Research Council and the Wellcome Trust (Grant ref: 102215/2/13/2) and the University of Bristol, which provides core support for ALSPAC.

DECIPHer

The work was undertaken with the support of The Centre for the Development and Evaluation of Complex Interventions for Public Health Improvement (DECIPHer), a UKCRC Public Health Research Centre of Excellence. Joint funding (MR/KO232331/1) from the British Heart Foundation, Cancer Research UK, Economic and Social Research Council, Medical Research Council, the Welsh Government and the Wellcome Trust, under the auspices of the UK Clinical Research Collaboration, is gratefully acknowledged.
Thanks for listening, any questions?