3 THE IMPACT OF MENTAL HEALTH AND WELLBEING ON GCSE PERFORMANCE IN ENGLAND: A LONGITUDINAL ANALYSIS OF THE NATIONAL PUPIL DATABASE LINKED TO UNDERSTANDING SOCIETY

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Aim To evaluate prospectively the influence of mental health and wellbeing in early adolescence on educational attainment.
Methods Using the data linkage between 1073 participants from the UK Household Longitudinal Study (2009-2012) and the National Pupil Database, we investigate longitudinal associations between mental health at ages 11-14 and later attainment at GCSE. We use the term mental health to encompass socio-emotional development (measured using a self-completed Strengths and Difficulties Questionnaire) and subjective wellbeing (measured using a self-assessment of happiness with life as a whole). Young people were scored as having typical (0-14), borderline 15-17), or atypical (18-40) levels of socio-emotional development. Happiness was defined as a score of 1-3 on a 7 point scale.
Results Low levels of socio-emotional development aged 11-14 were associated with a lower likelihood of gaining 5 A*-C GCSEs. Over half (57%) of young people with low levels and almost half (46%) of those with borderline low levels of socio-emotional development did not achieve 5 A*-C GCSEs including maths and English, compared to 30% of their peers with typical levels of development. This association remained significant after controlling for individual demographic and household social and economic factors, (low SDQ odds ratio: 2.80, [1.95,4.03]; (Borderline SDQ odds ratio: 1.94, [1.31,2.87]). Wellbeing at ages 11-14 was positively associated with later GCSE attainment. Almost half (48%) of children who were not happy with their life as a whole at ages 11-14 did not achieve 5 A* to C GCSEs, compared to around one-third (35%) of their happier counterparts. This association was significant after controlling for individual demographic and household social and economic factors (odds ratio: 1.59, [1.09-2.32]).
Conclusion Mental health at ages 11-14 was independently linked to educational success at age 16. Given the known links between educational attainment and later life outcomes, this evidence illuminates an important mechanism through which poor health in childhood and early adolescence can limit young people's life chances. It provides another strong case for investing in adolescent mental health in addition to the health and economic cases widely evidenced in the literature.

4 BOYS, BULK, AND BODY IDEALS: SEX DIFFERENCES IN WEIGHT GAIN ATTEMPTS AMONG ADOLESCENTS IN THE UNITED STATES

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Aim Research on attempts to gain weight among adolescent males is limited and has not yet been examined using nationally representative samples in the United States. The objective of this study was to estimate the prevalence of weight gain attempts in adolescent boys using a nationally representative sample and to examine differences in weight gain attempts by weight classification, weight self-perception, age, race/ethnicity, and sexual identification.
Methods Participants were 15,624 high school students from the nationally representative 2015 Youth Risk Behavior Survey.
Results Overall, 29.6% of adolescent boys reported attempts to gain weight, including 39.6% of boys who were normal weight, 12.8% who were overweight, and 10.6% who were obese by body mass index (BMI). In contrast, only 6.5% of adolescent girls reported attempts to gain weight. Although only 3.3% of adolescent males are underweight by BMI, 19.3% perceive themselves to be underweight. Further, over half of adolescent males who are overweight by BMI perceive themselves to be about the right weight. African American (Odds ratio [OR] 1.89; 95% confidence interval [CI] 1.50-2.38) and mixed race (OR 1.62; 95% CI 1.16-2.26) adolescent males had greater odds of weight gain attempts than White adolescent males. Adolescent males identifying as bisexual had lower odds (OR 0.47; 95% CI 0.25 – 0.88) of weight gain attempts than adolescent males identifying as heterosexual.
Conclusions Weight gain attempts are common among adolescent boys including those who are considered normal weight, overweight, or obese by BMI; African American or mixed race; and those self-identifying as heterosexual. Consideration of the unique nature of male body image, particularly adolescent boys' perceptions of their own weight and weight-gain attempts, should be incorporated into primary care screening for adolescent boys.

5 INTERNATIONAL COMPARISONS OF HEALTH AND WELLBEING IN ADOLESCENCE AND EARLY ADULTHOOD

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Aim To provide a snapshot of how the UK compares internationally with similar high-income countries in relation to young people's (YP's) health measures.
Methods Undertaken in partnership with The Nuffield Trust, AYPH undertook a descriptive study comparing health and wellbeing indicators for YP in the UK to 18 other high-income countries. Publicly available international datasets were used for these analyses. Some of the 17 areas of comparison included obesity, long-standing illness, deprivation, adolescent birth rate, asthma death rate, diabetes, cancer mortality, smoking, alcohol consumption, overall mortality and transport injury death.
Results

- The UK has the highest rate of deaths from asthma for YP aged 10–24, compared to all European countries in the comparative group, and the fourth highest overall behind the USA, Australia and New Zealand.
- As well as having the highest rates of obesity in 15– to 19–year–olds compared to the 14 European countries in the comparative group, the UK also has one of the greatest

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differences in obesity levels between YP living in the poorest areas of the country and the richest.
- YP in the UK have a higher burden of disease from long term conditions such as diabetes than some of their peers in other countries.
- The UK is in the middle of the pack compared to other countries on some indicators for YP, including cancer mortality, smoking, alcohol consumption and cannabis use. Trends in health–related behaviours such as smoking, and alcohol consumption have been falling internationally in recent years, reflected in the UK statistics.
- The UK has some of the lowest rates of road traffic injury deaths, which have also been steadily improving over time.
- Overall, the UK performs in the top third of countries on mortality rates for 10–to 19–year–olds. Recently, however, progress has stalled and for YP aged 20–24 got worse between 2013 and 2016.

Conclusions Although there are some positive findings, the UK's performance on many indicators for this age-group are lagging behind that of similar high-income countries. An increased policy focus is required on this age-group if these worrying trends are to be reversed.

6 POLYCYSTIC OVARIAN SYNDROME IN ADOLESCENTS: DISCOVERY PROTEOMICS AND THE SEARCH FOR NOVEL NON-INVASIVE BIOMARKERS

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Background Polycystic ovarian syndrome (PCOS) is common, affecting up to one-fifth of females and is associated with significant comorbidity. Despite this, it is poorly understood, and diagnosis and management remain challenging in adolescents. Proteomics enables the better understanding of disease mechanisms and facilitates the identification of novel biomarkers.
Objectives To describe the clinical phenotype of PCOS in adolescents and undertake discovery proteomic urine profiling using ultra-performance liquid chromatography-mass spectrometry (UPLC-MS/MS) to identify novel non-invasive biomarkers of PCOS.
Method This prospective longitudinal study recruited adolescent females meeting NIH diagnostic criteria for PCOS. The following were measured at baseline and annual follow-up: hormonal and metabolic markers including an oral glucose tolerance test, psychological, pubertal and anthropometric parameters, and pelvic ultrasounds. We have undertaken UPLC-MS/MS and developed new methods for discovery proteomic profiling of urine in an attempt to identify new disease mechanisms, drug targets and potential biomarkers.
Results We recruited 40 participants (median age 15.0 years, range 12.5-18.3), with two-thirds completing annual follow-up. Clinical signs at presentation included acne (89%), hirsutism (78%) and acanthosis nigricans (49%). Two-thirds of participants had depressive or anxiety symptoms yet only one-third were known to mental health services. Metabolic dysfunction was common at baseline; overweight/obesity (86%), elevated body fat (88%) and dyslipidaemia (35%). These parameters persisted at follow-up. Insulin resistance was almost universal at baseline and follow-up (91%). Impaired glucose metabolism was common but improved from baseline (29%) to follow-up (10%; $p=0.11$). Over two-thirds had elevated anti-Müllerian hormone, three-quarters had an elevated free androgen index. Raised inflammatory markers (CRP/ESR) were present in 40% participants. Only three participants had definitive ultrasonographic evidence of PCOS. Interventions included lifestyle advice (27%), combined oral contraceptive pill (COCP) ± anti-androgen (16%), metformin (30%) or metformin + COCP ± anti-androgen (27%).
Conclusion and future directions Adolescents withPCOS are at high risk of metabolic dysfunction, inflammation and mental health disorders. Therefore, early diagnosis and intervention are imperative. However, current diagnostic and surveillance methods are suboptimal. We have used urinary proteomics to study metabolic pathways affected in PCOS and aim to identify novel non-invasive biomarkers. Subsequently, we will create a clinically translatable assay to aid diagnosis and stratify management of this common adolescent condition.

7 YOUTH GAMBLING AND MENTAL HEALTH- A POPULATION STUDY

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Aims To investigate gambling behaviour in youth aged 17-24 and explore the associations with mental health and wellbeing.
Methods A large contemporary UK cohort study, the Avon Longitudinal Study of Parents and Children (ALSPAC), was used to collect the data. Young adult participants completed computer-administered gambling surveys in research clinics, on paper and online. Depression, anxiety and wellbeing scores, and drug and alcohol usage, were collected by self-completion questionnaires. The sample sizes were 3566 at age 17 years, 3940 at 20 years, and 3841 at 24 years. Multiple imputation techniques were utilised to adjust for missing data, and multivariable models created using the imputed data set.
Results Participation in gambling in the last year was reported by 54% of 17-year-olds, rising to 68% at 20 years, and 66% at 24 years, with little overall variance. Regular (weekly) gambling showed a strong gender effect, increasing from 13% at 17 to 17% at 24 years. The commonest forms of gambling were playing scratchcards, playing the lottery, and private betting with friends. The only activity which increased markedly between 17 and 24 years was gambling on activities via the internet, especially in males.

Problem gambling was measured at each age using the Problem Gambling Severity Index (PGSI), and responses categorised into 'no problem' 'low risk gambling' (16-21%) and 'moderate risk/problem gambling' (6-7%). At risk gamblers had shown higher hyperactivity scores and conduct problems on the SDQ at 16 years. Between 17 and 24

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