

with >2 exposures. Infectious diseases were by far the most common outcomes studied (44%): blood-borne viruses alone accounted for 33% of all data points. The next most common outcomes were external causes, injury, and poisoning (16%) and mental disorders (14%); together with infections, these categories accounted for 73% of all data points.

Conclusion Existing research on the health of people experiencing multiple forms of social exclusion is dominated by cross-sectional studies examining a relatively limited set of exposures and outcomes. The lack of data on more than two exposures in combination; self-rated health or quality of life; or non-communicable diseases (e.g. cardiovascular disease and cancer) suggests that research to date may not reflect the true burden of ill-health in these populations. Limitations include restriction to peer-reviewed studies and risk of publication bias.

OP43

A CASE CONTROL STUDY OF SOCIAL DETERMINANTS OF TUBERCULOSIS RISK IN WHITE UK-BORN ADULTS IN ENGLAND

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Background Tuberculosis (TB) remains a public health problem in the UK-born population of England, including among young adults. Ecological studies indicate that deprivation is an important risk factor for TB, but there are few recent individual-level studies in high income countries that have investigated the association between poverty-related social determinants of health inequality (SDH) and TB.

Our objective was to measure the association between individual socio-economic status and social determinants of health, and TB, taking into account the clustering of social risk factors in individuals, and to estimate the potential population impact on TB rates.

Methods Secondary analyses of a nationwide case-control study conducted among UK-born White adults aged 23 to 38 years at diagnosis of their first TB episode, and randomly selected age and sex frequency-matched community controls. Data on some SDH (education, household overcrowding, tobacco smoking, alcohol use, drugs use, and history of homelessness and prison) were collected in face-to-face interviews. Statistical analyses, using logistic regression models, was informed by a theoretical causal framework (Directed Acyclic Graph) of plausible inter-relationships between the measured social factors.

Results Overall, 681 TB cases and 1183 controls were recruited. The risk of TB was about four times higher in subjects whose formal education was up to GCSE O-levels or less compared to those with at least a university degree (OR=3.94; 95%CI: 2.74; 5.67), after controlling for other TB risk factors (age, sex, BCG vaccination and stays in Africa or Asia for ³3 months). After simultaneously adjusting for these risk factors and all measured social determinants, higher TB risk was also independently associated with tobacco smoking, use of drugs (especially injectable drugs - OR=5.67; 95% CI: 2.68; 11.98), history of homelessness and deprivation in the area of residence. Population Attributable Fraction (PAF) estimates suggested that tobacco use and class-A drug use

were, respectively, responsible for 18% and 15% of TB cases in the target population.

Conclusion The results provide insight into some of the mechanisms through which deprivation increases the risk of TB in the general population in England and support the argument for improved approaches to TB control efforts, such as integrated health and social services in high-risk young adult populations.

OP44

DOES ETHNIC-RACIAL IDENTITY MODIFY THE EFFECTS OF RACISM ON AUSTRALIAN ABORIGINAL CHILDREN SOCIO-EMOTIONAL WELLBEING?

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Background Racism impacts the health and wellbeing of racial minorities across the lifespan. Ethnic-racial identity (ERI) has been suggested as a protective factor against adversity on racial minorities' wellbeing, however, findings vary between ethnic-racial groups. Research in the Aboriginal Australian context is still limited. The present study tests ERI affirmation as an effect-modifier of the longitudinal association between racism and Aboriginal Australian children's socio-emotional wellbeing (SEWB). Effect-sizes are hypothesized to be smaller among children with higher ERI affirmation.

Methods Children (n=408) from the K-Cohort of the Longitudinal Study of Indigenous Children (LSIC) were included in the analysis. Data were collected through questionnaire-guided interviews in two time points, when children were 7–10 years and 9–12 years. Children's racism experience, SEWB (assessed by the Strengths and Difficulties Questionnaire), and confounders were reported by caregivers. Information on ERI affirmation was provided through child self-report. Analyses were conducted in Stata 14. Multiple imputation with chained equations was used to address potential bias due to missing data. Poisson regression with robust errors estimated adjusted Risk Ratios (RRa) for the longitudinal effect of racism on different domains of child SEWB. For the effect-measure modification analysis, RRa were obtained for the different stratum of the exposure (racism) and the effect-modifier (ERI affirmation). The direction of the modification was indicated by the Relative Excess Risk due to Interaction (RERI) on the additive scale.

Results Children exposed to racism and with low ERI affirmation were at increased risk of increased socio-emotional difficulties, especially for hyperactive behaviour (RRa 2.16, 95% CI 1.00, 4.67), conduct problems (RRa 1.76, 95% CI 0.71, 3.83), and total difficulties (RRa 1.94, 95% CI 0.92, 4.11), although the 95% confidence intervals were wide. Positive effect-measure modification was found in these domains, with respective RERIs of 1.08, 1.39, and 1.14. Contrary to our hypothesis, children with high ERI affirmation were at increased risk of peer problems (RRa 1.80, 95% CI 0.83, 3.90). A negative effect-measure modification was found in this domain (RERI: -0.75).

Conclusion Results indicate that promoting ERI affirmation among Aboriginal Australian children might assist to mitigate the effects of racism on specific domains of child SEWB.

Higher effects for peer problems observed for children with higher ERI affirmation suggests the role of ERI among Australian Aboriginal children might differ according to the aspects of ERI and outcomes being considered. ERI could be the target of future interventions in Aboriginal children to offset effects of racism.

Diabetes

OP45

THE POTENTIAL IMPACT OF DIABETES PREVENTION ON THE FUTURE UK BURDEN OF DEMENTIA AND DISABILITY

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Background Diabetes is associated with an increased risk of dementia and disability. However, the implications of future trends in diabetes for the burden of these conditions are unclear. The aim of our study is to estimate the potential impact of trends in diabetes prevalence upon the future burden of dementia and disability in England & Wales by 2060.

Methods We used a probabilistic multi-state, open-cohort, Markov model to integrate observed trends in Type 2 diabetes, cardiovascular disease and dementia to forecast the occurrence of disability and dementia to 2060. The model incorporated English Longitudinal Study of Ageing (ELSA) data, published effect estimates for state transition probabilities, trends in mortality and dementia incidence.

The baseline scenario assumed that the recently observed trends in obesity would continue, resulting in a 26% increase in Type 2 diabetes cases by 2060. Against this baseline, we compared three other scenarios reflecting alternative projected trends in diabetes suggested by Public Health England models: increases of 7%, 20% and 49%. For each scenario, we then calculated the cumulative number of dementia and disability cases and number of life years lost or gained by 2060, in comparison to the baseline scenario.

We used probabilistic sensitivity analysis to estimate 95% uncertainty intervals (UI).

Results If the relative prevalence of Type 2 diabetes increases 49% by 2060, we might expect approximately 106,000 (95% UI 97,500 to 112,800) cumulative additional cases of disability, some 86,000 (95%UI: 80,000 to 92,500) additional cases of dementia and approximately 2,570,000 (95%UI: 2,500,000 to 2,660,000) life years lost by 2060.

If prevention policies succeed in slowing down the increase in Type 2 diabetes to 7% by 2060, we might expect approximately 94,000 (87,000 to 100,400) fewer new cases of disability, 77,000 (95%UI: 71,800 to 82,900) fewer cases of dementia and approximately 2,300,000 (95%UI: 2,220,000 to 2,370,000) life years gained by 2060. However, large benefits would only be seen after a substantial lag-time: only 4,700 (95%CI: 4,300 to 5,100) new cases of disability and 3,200

(95%CI: 2,900 to 3,500) new cases of dementia would be avoided by 2030.

Conclusion Substantial reductions in the future burden of dementia and disability appear eminently achievable if effective prevention policies succeed in halting the ongoing epidemic of obesity and associated Type 2 diabetes.

However, these reductions might only become visible after a substantial lag-period.

OP46

DO YOUNG PEOPLE WITH CHILDHOOD ONSET TYPE-1 DIABETES HAVE DIFFERENT PATTERNS OF ALCOHOL-RELATED HOSPITAL ADMISSION THAN THOSE WITHOUT? A RECORD-LINKED LONGITUDINAL STUDY IN WALES

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Background Children and young people with type-1 diabetes (T1D) have excess all-cause hospital admissions, particularly younger children with lower socioeconomic status. Education on managing alcohol consumption is given to teenagers with T1D in paediatric diabetes services, but little is known about alcohol-related harm. We compare the risk of alcohol-related hospital admission (ARHA) in children with T1D over 18.5 years with that of the general population for the same birth years.

Methods We extracted data for 1,794,559 individuals born between 1979 and 2014 with a GP registration in Wales and record-linked these to wholly attributable ARHA between 1998 and June 2016 within the Secure Anonymised Information Linkage Databank (SAIL). Diabetes status was assessed by record-linking to a national register (Brecon Cohort), containing 3,577 children diagnosed since 1995 with T1D before the age of 15 years. Linking to the Welsh Demographic Service dataset provided information on age, sex and the lower super output areas (LSOAs) of residence, including moves. To each LSOA we linked the Welsh Index of Multiple Deprivation 2008 quintiles. We censored for death or leaving Wales. We estimated hazard ratios (HRs) with 95% confidence intervals (95% CIs) for the risk of (multiple) ARHA for sex, age and deprivation quintiles (both time-varying) using recurrent-event models. We also included interaction terms between age group, and separately deprivation fifth, and diabetes status.

Results There were 37,930 (multiple) admissions and 19.1 million person-years of follow up. Individuals with T1D had 252 admissions (up to 4 admissions each), and overall had an 80% higher risk of ARHA (HR 1.8; 95% CI 1.60 to 1.99) compared to those without, having adjusted for age group, sex and deprivation fifth. In diabetic individuals the risk of ARHA was highest aged 14–17 years (HR 6.03; 95% CI 4.70 to 7.75), six times higher than the reference group of those without T1D aged 11–13. In the general population the highest risk was in those aged 18–22 (HR 2.23, 95% CI 2.14 to 2.32) compared to the same reference group. The deprivation gradient in those with T1D was less pronounced than in the comparison population.

Conclusion Young people with T1D have increased risks of ARHA, highest at school age (14–17 years) and earlier than the peak at student age (18–22 years) in the comparison population. Interventions aiming to reduce alcohol-related harm in