

maximum value of 29.3%. For the very low birth weight indicator, the average minimum was 1.15% and average maximum 3.88% (2.32 times the published upper confidence interval).

Discussion There is substantial geographical variation in the proportion of patients opting out of sharing their NHS data for research and planning. As shown by this simulation, even in areas with average rates of opt outs, published health indicators may be biased and not reflect the true picture of health outcomes. This is particularly the case for rarer – and potentially more severe – events. It is essential that patients are informed of the implications of opting out when deciding whether to consent to sharing their health data for research and planning purposes.

RF16

THE EFFECTS OF CARING FOR YOUNG DISABLED CHILDREN ON MOTHERS' HEALTH AND HEALTHCARE USE: FINDINGS FROM THE BORN IN BRADFORD COHORT STUDY

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Rationale Mothers of older disabled children have worse health than mothers of typically developing children but may visit the GP less about their health problems. It is unknown whether these disparities are also present during the preschool period (0–5 years). This study compared the prevalence and frequency of GP visits for symptoms of maternal ill-health in mothers of preschool children with developmental disabilities compared with other mothers.

Methods The primary care records of children in the Born in Bradford cohort study were searched for developmental disability diagnoses before the age of five. Mothers of these children were considered exposed (n=477); all other mothers unexposed (n=9,250). Bivariate and multivariate logistic regression reporting odds ratios (OR) was used to compare the prevalence of psychological distress, head and musculoskeletal (MSK) pain, and exhaustion for exposed versus unexposed mothers in the year prior and five years after the child's birth. Bivariate and multivariate zero-inflated negative binomial regression reporting relative rate ratios (RRR) was used to compare GP visit frequency for these symptoms. Covariates were mother's age, ethnicity, education, subjective financial status, cohabitation status and pre-natal data (in the post-natal models).

Results Prevalence varied little pre-birth. Exposed mothers were more likely than unexposed mothers to have post-natal psychological distress (34.6% exposed versus 30.2% unexposed; OR 1.23; 95% CI 1.00, 1.52) and exhaustion (19.3% versus 14.4%; 1.41; 1.11, 1.78) after the child's birth, but not head and MSK pain (43.4% versus 39.1%; 1.17; 0.96, 1.42). Adjusting for covariates did not attenuate these findings. Visit frequency also varied little pre-birth. Visits to the GP increased after the birth, and exposed mothers did not consult more frequently than unexposed: psychological distress (mean 1.1 (standard deviation 2.0) exposed versus 0.9 (2.3) unexposed; RRR 1.00; 95% confidence interval 0.83, 1.20); head and MSK pain (1.0 (1.7) versus 0.9 (1.7); 1.08; 0.83, 1.40); exhaustion (0.3 (0.6) versus 0.2 (0.5); 1.19; 0.76, 1.85). Pakistani ethnicity (versus white British) and pre-natal consultation were strongly associated with higher post-natal consultation rates.

Conclusion Mothers of young children with developmental disabilities may have an increased risk of some symptoms of ill health, but do not consult more frequently. The provision of early family-centred support and increased GP awareness of caregiver status could help identify and support those at risk.

RF17

THE EFFECT OF ACCELEROMETER-BASED SLEEP TRAITS ON OBSTETRIC OUTCOMES: A MENDELIAN RANDOMIZATION STUDY USING UK BIOBANK

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Background Poor sleep is associated with increased risks of adverse pregnancy and perinatal outcomes in some studies using multivariable analyses, but these associations may be due to confounding, or biased due to the use of self-reported sleep measurements. Mendelian randomization (MR) is less vulnerable to confounding than multivariable regression and using accelerometers to objectively assess sleep will not be affected by reporting bias. Our aim was to use MR to assess the impact of four accelerometer-based sleep traits (i.e. duration, efficiency, fragmentation and chronotype) on obstetric outcomes (pregnancy loss, gestational diabetes, postnatal depression and offspring birthweight).

Methods We conducted a two-sample MR in UK Biobank (UKB). Genetic variants were selected as those that were genome-wide significant in a previous genome-wide association study completed in a sub-sample of UKB females and males (N=85,670): sleep duration (11 variants), efficiency (5 variants), fragmentation (21 variants) and chronotype (6 variants). We estimated the association of each variant with self-reported obstetric outcomes among UKB female of European descent (N=30,310–265,680 for different outcomes with smaller Ns for data available only in online follow-up). In main analyses, we used inverse variance weighting (IVW) to estimate the influence of sleep traits on each outcome. Sensitivity analyses to explore instrument validity included MR-Egger, weighted median and weighted mode estimators. All analyses were performed using R.

Results In IVW analyses, an hour increase in sleep duration was associated with 45 g (95% confidence interval (CI): -80, -10) lower birthweight, but little evidence was found for effects on any pregnancy loss (odds ratio (OR): 0.97; 95%CI: 0.86, 1.10), stillbirth (OR: 1.24; 95%CI: 0.82, 1.87), miscarriage (OR: 0.92; 95%CI: 0.80, 1.07), gestational diabetes (OR: 0.94; 95% CI: 0.35, 2.55), postnatal depression (OR: 1.18; 95% CI: 0.79, 1.77). We also found little evidence for an effect of sleep efficiency, fragmentation and chronotype on any of the obstetric outcomes considered. Results of sensitivity analyses were largely consistent with IVW analyses. Estimates for sleep duration-birthweight effect were -42 g (95% CI: -90, 5) in weighted median, -23 g (95%CI: -84, 39) in weighted mode and 18 g (95% CI: -74, 110) in MR-Egger.

Conclusion We did not find consistent evidence supporting an effect of poor sleep on obstetric outcomes. However, even with large sample sizes some of our results are imprecisely estimated and have wide CIs, and we did not have data to test the relevance of our instruments during pregnancy and to

assess other important obstetric outcomes, e.g. hypertensive disorders of pregnancy.

RF18 CONTRIBUTION OF SEVERE NEONATAL MORBIDITY TO NEURODEVELOPMENT AT 2 YEARS OF AGE AMONG VERY PRETERM INFANTS: A MEDIATION ANALYSIS

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Background Low gestational age (GA) is the principle risk factor for poor long-term neurodevelopment among very preterm (VPT) children. Some of this effect results from a greater vulnerability to severe neonatal morbidities (SNM) which are strongly related to low GA as well as to poor neurodevelopmental outcome. We aimed to investigate how SNM mediates the relationship between GA and VPT adverse neurodevelopmental outcome at 2 years of corrected age.

Methods Data come from the area-based Effective Perinatal Intensive Care in Europe (EPICE) cohort of children born below 32 weeks' GA in 2011/2012 in 11 European countries. Perinatal data were abstracted from medical records and follow-up was conducted using parent questionnaires at 2 years of corrected age. Children unable to walk without assistance or aids, or sit or hold their head up without support were classified with severe gross motor impairment (GMI); Non-verbal cognitive impairment (NVCi) was assessed as a score <22 on the non-verbal cognition scale of the Parent Report of Children's Abilities-Revised (PARCA-R) and language impairment (LI) was defined as an expressive vocabulary of less than 10 words. SNM was defined as one or more of the following morbidities: intra-ventricular hemorrhage grades III & IV, cystic periventricular leukomalacia, retinopathy of prematurity stages III-V, surgical necrotizing enterocolitis or broncho-pulmonary dysplasia. An inverse odds weighting (IOW) mediation analysis was used to estimate the total effects of GA, and estimated indirect effects operating through SNM or directly through GA. CI were estimated by bootstrapping. Co-variables included perinatal risk factors and family socioeconomic characteristics.

Results Of 3370 children assessed in the follow-up; 5.3% had GMI, 14.9% had NVCi and 9.4% had LI. A one-week increase in GA was associated with a decreased risk of GMI (OR=0.80; 95 CI%=0.74–0.86), of NVCi (OR=0.85; 95 CI%=0.81–0.89) and LI (OR=0.89; 95 CI%=0.83–0.96). 20.4% of infants had at least one severe morbidity and this was more common among children with GMI (66.0% vs. 18.4%), NVCi (38.8% vs. 17.2%) and LI (38.4% vs. 18.4%). For GMI, almost 100% of the total effect of GA on GMI was mediated by SNM. This proportion was 70% for NVCi and 40% for LI.

Conclusion Reducing SNM could lead to substantial improvements in neurodevelopmental outcomes for VPT children, especially those related to motor development.

Interventions & Stakeholders' Perspectives

RF19 IDEOLOGY, STAKEHOLDERS AND PUBLIC HEALTH POLICY: A COMPARISON OF MEDIA DISCOURSES ON ALCOHOL AND SUGAR PRICING POLICY IN THE UK

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Background The media are a key influence on public and policymakers' perceptions of the need for, and acceptability of, new policies to improve population health. In the case of Minimum Unit Pricing (MUP) for alcohol and the Soft Drinks Industry Levy (SDIL), previous analysis suggests that an actor's position in the network is linked to their ideology, for example using social vs market justice arguments. In this study we use ideological scaling to examine stakeholders' policy positioning further.

Methods Data sets were generated from public debates on MUP and SDIL in UK newspapers using content analysis and discourse network analysis. Actor statements were analysed using ideological scaling of ideal points in Item Response Theory models. This approach is based on the assumption that actors communicate their ideological position through verbal statements in public documents. These statements then provide the basis to estimate underlying ideological positions of actors in specific policy areas. Ideological positions were estimated using Markov Chain Monte Carlo in the Bayesian Ideal Point model of Martin and Quinn.

Results In both debates, health charity and advocacy groups, individual NHS organisations and professional associations, as well as government advisory bodies, had a clear policy supporting ideology. Contrary to this, manufacturers/associated industries and associations, as well as think tanks and research analysts, had an opposing ideology. For the policy opponents, the most discriminating policy concepts were mainly economic or political in nature (e.g., 'Policy is illegal', 'Policy will damage industry and associated industries', 'Government action on commodity consumption is nanny statist' or 'Policy will damage the wider economy'). For the policy proponents, the most discriminatory policy concepts related to public health issues ('Policy will reduce consumption of commodity', 'Policy needed to address commodity 'problem'', 'Policy will improve population health').

Conclusion The media are a key influence on public and policymakers' perceptions of the need for, and acceptability of, new policies to improve population health. In contested public policy debates, stakeholders on both sides of the argument put forward competing rhetoric via the media to support their position in line with their vested interests whether driven by social and market justice principles.