

vulnerable to reverse causation and confounding. Mendelian randomization (MR) studies with even large numbers of unrelated individuals can suffer from familial biases, and dynastic effects ('genetic nurture') can be especially pronounced for socially patterned phenotypes like obesity. We introduce a 'within-family' MR (WFMR) design that uses genotyped mother-father-offspring trios to overcome these biases.

Methods In 5237 8-year-old children from the Norwegian Mother, Father and Child Cohort Study (MoBa), we estimated the effects of body mass index (BMI) on symptoms of depression, attention-deficit hyperactivity disorder (ADHD), anxiety, and autism spectrum disorder (ASD). Child height, weight, and outcomes were based on mother-reported information from questionnaires. We used polygenic risk scores (PRS) as instrumental variables for BMI, with and without adjustment for parents' own PRS. PRS were calculated in PRCise, and all other analysis completed in STATAv15. PRS were calculated using genetic variants from the largest and most recent genome-wide association study (GWAS) for BMI.

Results Initial MR estimates implied a one-unit higher BMI increased depression symptoms by 0.12 (95%CI 0.05,0.20) and ADHD symptoms by 0.11(0.03,0.18) standard-deviations, and reduced symptoms of anxiety by -0.11(-0.19,-0.03) and symptoms of ASD by -0.05(-0.13,0.03). For ASD, associations did not differ substantially between symptoms related to social communication (-0.03(-0.12,0.05) and to repetitive behaviour (-0.04(-0.12, 0.03). Accounting for parental genotypes in WFMR made little difference to estimates, with no strong evidence of indirect effects of parental genotypes on offspring phenotype. Next steps will be to examine relationships using gene variants associated with BMI during childhood specifically, and to investigate the influence of depressive, ADHD, anxiety and ASD symptoms on childhood BMI.

Conclusion Influence of childhood BMI on emotional and neurodevelopmental health is not explained by family-level genetic biases, suggesting childhood BMI may affect these symptoms. Negative associations of BMI with anxiety are consistent with results from the UK Biobank, where genetic propensity for BMI was negatively associated with risk of self-reporting as a 'nervous' person. Intervening on childhood BMI may influence these outcomes.

OP97

EFFECTS OF AN ALCOHOL PREVENTION PROGRAM AT SPORT ARENAS: A 2-YEAR QUASI-EXPERIMENTAL FOLLOW-UP STUDY USING PSEUDOPATRONS AND BREATH ALCOHOL CONCENTRATION LEVELS

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Background Alcohol intoxication and related problems among spectators are common at large sporting events around the world. In Sweden, the problems are greatest in the Swedish Premier Football League (SPFL). According to the Alcohol Act, obviously intoxicated individuals are not allowed to enter or purchase alcohol at arenas. In 2015, we initiated a research project with the aim to reduce intoxication levels among spectators. A multi-component prevention program was co-created and implemented together with key stakeholders, and consisted of community mobilization, training, policy work, and

enforcement. The aim of this study was to evaluate the effects of this program.

Methods This is a quasi-experimental control group study using a repeated cross-sectional design (baseline 2015, follow-ups 2016 and 2017). The setting was arenas hosting SPFL games in Stockholm (intervention area) and Gothenburg (comparison area). Professional actors (i.e. pseudopatrons) were trained to act a standardized scene of obvious intoxication while attempting to enter arenas and purchase alcohol at licensed premises inside arenas. To control for possible external factors, we also conducted alcohol purchase attempts at licensed premises outside arenas, where denial rates should remain stable. Spectators at arenas were randomly invited to provide BrAC-assessments using breathalyzers.

Results A total of 10178 BrAC-assessments were collected, 201 attempts to enter arenas, and 495 attempts to purchase alcohol at premises inside arenas. In the intervention area, denial rates toward obviously intoxicated spectators increased between the assessment points from 12.9% (95%CI 6.6–22.2) to 32.8% (22.5–44.6) at entrances and from 31.8% 25.4–39.0) to 56.8% (49.6–63.7) at premises inside arenas. Mean BrAC-level decreased between baseline and two-year follow-up from 0.063% (0.061–0.065) to 0.057% (0.054–0.059) and the proportion of spectators with high intoxication levels from 9.7% (8.7–10.7) to 5.9% (5.1–6.9). A similar pattern was observed in the comparison area, however, while the denial rate remained stable at premises outside arenas in the intervention area, it increased in the comparison area.

Conclusion Interpretation of results is complex due to improvements in the comparison area. However, unlike in the intervention area, denial rates increased at premises outside the arena in the comparison area, indicating that external factors have affected the arena in the comparison area. Results then suggest that the intervention was successful in increasing staff intervention toward obviously intoxicated spectators, thereby decreasing the overall intoxication levels. A limitation is the repeated cross-sectional design which limits conclusions on causality. The intervention has the potential to be implemented at other sporting events.

OP98

USING DELPHI METHODS TO INCREASE SEASONAL INFLUENZA VACCINATION IN HEALTHCARE WORKERS ACROSS LONDON

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Background Seasonal influenza vaccination (SIV) uptake in healthcare workers (HCWs) across London has more than doubled since 2014/15 from 25% to 64% in 2018/19, but uptake is still less than the national average of 70%. Given the lack of certainty in the literature around interventions that work to improve uptake, particularly within the NHS and across a range of Trust types, the aim here is to determine which interventions have been effective (and ineffective) in increasing uptake in SIV in HCWs across the 36 acute, community, mental health and specialist trusts in London.

Methods The Delphi technique is a structured process that uses a series of questionnaires or 'rounds' to gather information until a group consensus is reached. An advantage of the methodology is that it can be used to collate expertise across

diverse locations and individuals anonymously. A modified Delphi method was utilised consisting of 2 rounds of self-administered questionnaires completed electronically and a third round of a meeting where paper questionnaires were distributed to infection control and influenza leads from the 36 London Trusts represented in the room. Round 1 was devised using generic open-ended questions and responses were categorised qualitatively into themes. These themes were converted into statements for Round 2 and respondents were asked to indicate their degree of agreement/disagreement on a Likert scale. Median and mode responses were reviewed to determine if there was a trend towards strong (dis)agreement or (dis)agreement for each item on the Likert scale. Round 3 was devised exploring areas of most uncertainty from Round 2. Consensus was defined as where $\geq 75\%$ of responses showed strong (dis)agreement/(dis)agreement on a Likert scale. **Results** There were 34, 33 and 24 responses to the rounds respectively. The most effective interventions in increasing uptake amongst HCWs across a wide-range of different Trusts across London were found to be:

1. The availability/accessibility of vaccination at work
2. Planned advertising/promotion/communications, including electronic communication
3. Peer vaccinators
4. Myth-busting; education and training
5. Strong, visible leadership and engagement.

Contrary to popular belief, uptake varied by teams rather than by health professional so targeting influencers in teams was deemed effective.

Conclusion The results of the delphi method were transformed into the '7 steps to success' campaign, which was implemented during winter 2019/20. The summative evaluation has shown that uptake amongst health care workers has increased significantly on last year.

Posters

P01 POLYPHARMACY AS A RISK FACTOR FOR ALL-CAUSE MORTALITY AMONG OLDER PEOPLE IN ENGLAND

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Background Polypharmacy is a prevalent phenomenon in older people. Both positive and negative outcomes of polypharmacy have been reported, making the role of polypharmacy somewhat uncertain. Most previous studies have found polypharmacy is associated with increased mortality in older people, but the definition of polypharmacy varies widely. Therefore, we tested this relationship by using the most common definition of polypharmacy. This study aims to investigate the association between polypharmacy and all-cause mortality among older people.

Methods Participants were from the English Longitudinal Study of Ageing (ELSA), a nationally representative sample of people aged 50 and older. In 2012/2013, 7729 people participated in the nurse visits, of these, 7727 were

followed up for mortality until March 2018. Complete data were available from 6757 people. Polypharmacy was defined as taking five to nine long-term medications a day for chronic diseases or chronic symptoms, while using ten or more medications was categorised as heightened polypharmacy. The presence of illness was defined as either self-reporting conditions or taking specific medications for the condition. Cox proportional hazards model was used in this study.

Results The age- and sex-adjusted hazard ratios of polypharmacy and heightened polypharmacy were 2.35 and 4.24, respectively, and these effects on all-cause mortality were primarily attenuated when adjusting for chronic conditions such as diabetes, coronary heart diseases, lung diseases and cancer. The effects of polypharmacy and heightened polypharmacy on mortality were further attenuated after adjusting for disability and health behaviours but remained significant. After adjusting for demographics, existing chronic diseases, disability, health behaviours, cognitive function and high-risk medications, people reporting polypharmacy (n=1357) had 1.51 times higher risk of death (95% CI 1.05, 2.19) compared with people not taking any medications (n=1924). People reporting heightened polypharmacy (n=162) also had 2.12 times higher risk of death (95% CI 1.29, 3.50), by contrast, people taking one to four drugs no longer showed a higher risk of death after adjustments.

Conclusion People reporting polypharmacy and heightened polypharmacy had a higher risk of mortality than people who did not take any medications. The results imply the presence of polypharmacy or heightened polypharmacy could be an indicator of mortality for older people, highlighting the need to ensure the appropriateness of multiple medications.

P02 IMPROVING THE EXPERIENCE OF CARE FOR PEOPLE WITH DEMENTIA IN HOSPITAL: DEVELOPING THE DEMENTIA CARE POINTERS FOR SERVICE CHANGE

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Background Being in hospital can be particularly confusing and challenging not only for people living with dementia, but also for their carers and the staff that care for them.

Methods We undertook three systematic reviews of quantitative and qualitative evidence according to best practice guidelines. The reviews explored: 1) experience of care in hospital; 2) experience of interventions to improve care in hospital; and 3) effectiveness and cost-effectiveness of interventions to improve the experience of care in hospital for people living with dementia, their carers and staff. Links between the findings from the three reviews were explicitly identified through the creation of a conceptual map. Working closely with key stakeholders we co-developed 12 institutional and environment practices and