associations between social isolation, loneliness, socioeconomic position, health behaviours and symptoms of poor mental health further obscure our understanding of potential pathways. This study therefore aimed to explore time-varying associations between social isolation, living alone and loneliness and neuro-immune markers in older adults, whilst accounting for a comprehensive range of confounders.

**Methods** We analysed blood samples from 8780 adults aged 50 and above from the English Longitudinal Study of Ageing (ELSA), a nationally-representative longitudinal cohort study, across three waves of data collection: 2004/5, 2008/9 and 2012/2013. At baseline, the sample was 55% female, 66.4% married or in a partnership and 44.2% had no or basic qualifications. Multiple imputation was used to account for missing data. Fixed effects modelling was used to estimate independent relationships between loneliness, social isolation, living alone and levels of three inflammatory markers: fibrinogen, white blood cell (WBC) count and C-reactive protein (CRP), and the neuro-inflammatory regulator insulin like growth factor-1 (IGF-1).

**Results** ELSA participants who experienced an increase in social engagement were found to have decreased levels of the inflammatory markers fibrinogen (fixed effects coefficient: −0.007 [confidence interval: −0.015 – 0.001]), WBC (−0.012 [−0.021 – −0.003]) and CRP (−0.040 [−0.078 – −0.002]). Similarly, living status was inversely associated with fibrinogen (−0.057 [−0.097 – −0.018]), WBC (−0.098 [−0.147 – −0.048]) and CRP (−0.238 [−0.416 – −0.060]). By contrast, decreased loneliness was associated with increased IGF-1 (0.133 [0.026 – 0.240]). The findings were independent of time-invariant factors such as gender, medical history, unobserved aspects of social position, and genetics, and time-varying factors such as income, physical health, health behaviours, and depressive symptoms. The results were maintained in sensitivity analyses that accounted for BMI, gender interaction, survey weighting and exclusion of imputed values.

**Conclusion** Whilst causality cannot be assumed in observational studies, the results suggest that being alone and feeling alone are distinct biopsychosocial stimuli. Assuming the methodology sufficiently accounted for confounding factors, this interpretation is especially relevant to the current social prescribing and healthy ageing movements.

The main aim was to study co-morbidity and co-development of obesity and poor mental health across childhood and into mid-adulthood using data from two national birth cohorts.

**Methods** This study analysed BMI and mental health data from participants that attended any one of the ages 11/10, 16, 23/26, 33/34 and 42 assessments from the 1958 National Child Development Study (NCDS58) and the 1970 British Cohort Study (BCS70) [total N=30,868, 51% males]. Mental health was based on symptoms of anxiety and depression assessed by questionnaires answered by participants (or their parents during childhood).

Odds of co-occurrence of obesity and poor mental health were analysed using multivariable logistic regression at each age for the entire sample and separately for each cohort, adjusting for sex, and childhood and adulthood socioeconomic position.

Latent spline growth models were used to assess the co-development of BMI and mental health (associations between intercepts and slopes) across all 5 ages adjusting for sex and socioeconomic indicators. Growth models were also run restricting to adulthood sweeps only. Missing data was addressed using multiple imputation.

**Results** Obesity and poor mental health were found to be co-morbid only in adulthood (adjusted odds ratio (OR) 1.31 [95% CI 1.19–1.43] at age 23/26, 1.22 [1.13–1.32] at age 34/33, 1.2 [1.11–1.30] at age 42). Co-morbidity was more likely in the BCS70 compared to NCDS58 cohort (for example, OR 1.22 [1.09–1.38] vs. 1.08 [0.97–1.2] at age 42 respectively).

Growth modelling revealed that BMI development across all 5 ages was predicted by mental health development (for example, a unit change in mental health slope was associated with 0.15 unit change in the BMI slope, [95% CI 0.13–0.18]). This was observed to be even stronger in adulthood-only models (adjusted standardised coefficient 0.56, 0.45–0.66). Estimates were similar in strength in both cohorts (0.32, [0.18–0.45] in NCDS58 and 0.44, [0.39–0.65] in BCS70) and sexes (0.36–0.64, males and 0.61 [0.46–0.76], females). BMI was not found to predict mental health development in any model.

**Conclusion** Findings indicate that obesity and poor mental health are more likely to co-occur in adulthood compared to childhood and the co-occurrence is more likely in the more recently born BCS70 cohort.

### Thursday 10 September

**Pregnancy I**

**OP39 ANALYSIS OF SPONTANEOUS, USER-GENERATED DATA ABOUT GESTATIONAL DIABETES ON ONLINE FORUMS: IMPLICATIONS FOR DIABETES PREVENTION**

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**Background** Perceptions of gestational diabetes mellitus (GDM) and future risk of Type 2 diabetes (T2D) have previously been explored in traditional qualitative research interviews among women who have had GDM. These findings have not been explored in

**Methods** We analysed postpartum data from a large UK online forum containing 14,197 threads, 27,397 parent-user accounts and 120,943 posts. At each of 6 timepoints (before and after conception and the 20th, 30th, 40th and 45th weeks of pregnancy), members posted threads discussing any aspect of pregnancy to which other members responded. We extracted data from threads containing any mention of gestational diabetes. We analysed the content of the posts using qualitative thematic analysis to identify underlying beliefs and experience of gestational diabetes amongst forum users.

**Results** There were 3176 unique threads that contained any mention of gestational diabetes, 2766 of which were identified as having at least one post that discussed gestational diabetes. Themes included: awareness of gestational diabetes; impact on lifestyle and health; emotional impact; views on dietary management; and social support. Amongst the 2766 threads with at least one post discussing gestational diabetes, 1380 (49.9%) contained posts positively expressing the experience of gestational diabetes, 1352 (48.7%) contained posts expressing complicated or conflicting views and 34 (1.2%) contained posts negatively expressing the experience of gestational diabetes.

**Conclusion** The findings from this online forum analysis have important implications for the development of strategies to improve awareness of and enable effective management of gestational diabetes.