

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 biosocial stimuli. Assuming the methodology sufficiently accounted for confounding factors, this interpretation is especially relevant to the current social prescribing and healthy ageing movements.

OP38

#### CO-MORBIDITY AND CO-DEVELOPMENT OF BMI AND MENTAL HEALTH FROM CHILDHOOD TO MID-ADULTHOOD IN TWO NATIONAL BIRTH COHORT STUDIES

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**Background** Obesity and poor mental health are increasingly common global chronic conditions likely to originate in childhood and have a propensity to track across the lifecourse. Their co-morbidity, co-development and longitudinal associations across the lifecourse are not well known, including whether these might be changing across cohorts.

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 (0.52, [0.38–0.66] in NCDS58 and 0.54, [0.39–0.68] in BCS70) and sexes (0.5 [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

are exposed to possible presentation bias resulting from the presence of the researcher and from bias inherent in relying upon a small self-selected sample of women who are motivated to participate in research and/or may have a particular interest in GDM. An alternative research approach is to opportunistically use 'found' data that is spontaneously user-generated within online discussion forums. The objective of this study was to explore the perceptions and beliefs surrounding GDM suggested within online parental-support forums for parents, that could have implications for future T2D prevention.

**Methods** A search was carried out using the Google search engine to identify online discussion forums that could be of relevance to women with GDM in the UK. We screened these 10 (out of 120 forums) to identify those containing relevant data that could be considered public, and selected Mumsnet and Netmums to be included in the study. They were comprehensively searched using the search term 'gestational diabetes or GD', and relevant posts from 1/1/2017 – 14/2/2019 were identified. Multiple messages from the same person were linked together as a single unit, analogous to a research participant, using an anonymised identifier. A theoretical framework derived previously was used to code and sort the data using framework approach.

**Results** A total of 646 posts in 137 threads from 282 unique users with current/previous GDM were analysed. Five prominent themes were identified: Emotional response to and understanding of diagnosis; personal responsibility; consequences and impact of GDM; lifestyle change; and Type 2 diabetes. Users' discussions around these themes highlighted three implicit 'messages' regarding GDM: that GDM is not a serious or even real diagnosis and the consequences are not severe; that women need not take personal responsibility for GDM; and there are minimal implications for T2D prevention.

**Discussion** These (partially) subliminal messages will all mitigate against efforts to encourage women to change their lifestyles for future T2D prevention. This is worrying as online networks have huge reach, and are viewed by millions of visitors who don't necessarily post themselves, but are signposted to these sites when they pose questions to global search engines. The data analysed were generated in a naturalistic setting and are perhaps closer than traditional qualitative research to women's real perceptions and beliefs surrounding GDM.

#### OP40 EXPLORING BARRIERS AND FACILITATORS FOR WOMEN TO SEEK HELP FOR REPRODUCTIVE SYMPTOMS IN THE UNITED KINGDOM: A RAPID REVIEW

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**Background** Many women experience reproductive symptoms that impact on their wellbeing but do not seek help for a range of different reasons. In this rapid review we explored the factors that enable or hinder women to seek help for unwanted or debilitating reproductive symptoms. We also aimed to examine whether existing interventions address

these factors and identify opportunities for alternative interventions.

**Methods** We searched electronic databases MEDLINE, PsycINFO and CINAHL in October 2019 and contacted experts to identify grey literature and additional interventions. The search strategy included terms covering behaviour and intervention combined with terms relating to common reproductive symptoms such as, dysmenorrhoea and menopause. We limited to articles published in English since 2009. We included any study that presented facilitators and barriers to seeking help for reproductive symptoms that was conducted with women in the United Kingdom. We also included articles on relevant interventions. One reviewer screened titles and abstracts with 10% double screened by a second reviewer. Full texts were screened independently by two reviewers. We extracted study characteristics using a pre-piloted form and used the Mixed Methods Appraisal Tool for quality assessment. Data extraction and quality assessment were performed by one reviewer and a sample checked by a second reviewer. We coded information on barriers and facilitators from each study into themes using NVivo. Results were summarised descriptively.

**Results** We screened 12474 citations, 102 full-text articles and retained 22 articles for analysis. Ten help-articles focused on interventions. Of the 12 articles reporting barriers and facilitators, the most common barriers to seeking help were embarrassment, perception that symptom is too private to talk about, dissatisfaction with the information received from healthcare professionals, poor knowledge, perception that symptom is part of aging and difficulty explaining the symptoms to others. Facilitators were having access to useful information/information pitched at the right level, an information source women felt comfortable with and supportive work environments (including awareness among managers and flexible working).

**Conclusion** This review identified a range of barriers and facilitators spanning across capability, opportunity and motivation. We have categorised the barriers and facilitators into the Theory and Techniques Tool (TaTT) mechanisms of actions (MoAs). Our next step is to assess whether the existing intervention contents match those deemed theoretically appropriate using TaTT in order to identify missed opportunities for intervention. This will enable us to make recommendations for interventions to support women to seek help for reproductive symptoms when necessary.

#### OP41 ASSOCIATIONS BETWEEN MODE OF DELIVERY AND OFFSPRING OVERWEIGHT/OBESITY: FINDINGS FROM THE STUDYING LIFECOURSE OBESITY PREDICTORS (SLOPE) POPULATION-BASED COHORT

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**Background** Childhood obesity affects one in ten children in England by age 5, and one in five by age 11. Existing evidence suggests a possible relationship between caesarean section (CS) birth and higher risk of overweight/obesity in childhood, however maternal obesity is a strong confounder