was designed to support delivery of CHErIsH by healthcare practitioners (HCPs) delivering the intervention. This strategy included appointing a local opinion leader and providing two incentivised training sessions and educational materials. The aim of this study was to examine the acceptability and feasibility of this HCP-level implementation strategy.

Methods A mixed-methods approach using qualitative and quantitative methods was used to investigate the acceptability and feasibility of the HCP-level implementation strategy. HCPs were recruited from three practices within a Healthcare Centre involved in the implementation of the intervention. Data were collected using researcher observations and field notes; HCP checklists, questionnaires and focus groups with Practice Nurses (PNs) and General Practitioners (GPs). Thematic analysis of qualitative data and statistical analysis of quantitative data is on-going.

Results Of the 21 HCPs involved in the implementation strategy, 18 (85.7%) completed both the pre and post-training questionnaires (GPs=9; PNs=9). Prior to training, 88% of HCPs considered discussing infant feeding as part of their professional role; however, only 44% reported feeling confident in doing so, with no HCPs discussing infant feeding at 4 and 6 months. The most common source of infant feeding information reported by HCPs included health service leaflets, discussions with colleagues and information leaflets from infant formula manufacturers. After training, all HCPs considered infant feeding to be part of their professional role, with 31% now discussing infant feeding with parents for infants aged 4 and 6 months. Qualitative data indicate that HCPs felt that both training sessions which provided resources and educational materials, were 'useful and very productive'.

Conclusion CHErIsH training sessions delivered as part of the implementation strategy were considered acceptable and feasible by the HCPs, and improved their confidence in providing infant feeding advice. These training sessions, which include information on current national feeding guidelines and feeding issues, should be delivered as part of routine HCP training. This will ensure that all HCPs have evidence-based training to support the delivery of consistent infant feeding messages at infant vaccination visits in primary care practice.

P57 CUTS TO SPENDING ON SURE START CHILDREN'S CENTRES AND CHILDHOOD OBESITY: EVIDENCE FROM A NATIONAL, LONGITUDINAL ECOLOGICAL STUDY IN ENGLAND

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Background Childhood obesity is rising in disadvantaged areas in the UK. Whilst the causes of childhood obesity are multiple and complex, modifiable pathways may operate through provision of community-based services in the early years, where healthy nutrition and physical activity can be supported in numerous direct and indirect ways. In England, local authority-run Sure Start children's centres have been an important source of parenting programmes; early learning and childcare; promotion of breastfeeding, active play and good nutrition; and links with employment and welfare support.

Austerity measures adopted by the UK government since 2010 resulted in large cuts to local authority (LA) budgets and, consequently, dramatic reductions in many councils' expenditure on non-statutory services, including Sure Start centres. Reduced investment in these centres may affect a range of child health and development outcomes, including childhood obesity. We assessed whether spending cuts were associated with the prevalence of obesity at school reception (age 4–5 years).

Methods This is a longitudinal ecological study over the period 2010–2017. Our main exposure was LA expenditure on Sure Start centres using data from the Department for Education. Our outcome was obesity prevalence at reception, using data from the National Child Measurement Programme. We used fixed-effects panel regression, controlling for secular changes in obesity prevalence and time-varying confounding by local economic conditions and levels of child poverty. We examined interactions with LA deprivation and pre-2010 obesity trends, and conducted a negative control analysis using spending on services for older children as a control exposure.

Results Between 2010 and 2017, spending on Sure Start and early years' services decreased by 56% on average across LAs in England, and more in deprived areas. Childhood obesity prevalence plateaued overall, but continued to increase in some areas, particularly more deprived areas. Our analysis indicates that, on average, obesity prevalence increased in areas with larger cuts to Sure Start spending. We estimate that each 10% spending cut is associated with a 0.34% relative increase in obesity prevalence (95% CI:0.15%-0.53%). There is some evidence that this association is stronger in the most deprived areas and in areas where obesity prevalence had been falling prior to 2010.

Conclusion Our findings suggest cuts to local authority spending on children's centres are associated with increased childhood obesity. Disinvestment in the services these centres provide in the early years may be undermining progress in reducing the prevalence of childhood obesity. Limitations of the study include a reliance on area-level obesity data.

P58 COMBINED EFFECTS OF SOCIAL RELATIONSHIPS AND VISCERAL ADIPOSITY IN WOMEN AND MEN

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Background Social connections are recognized as a major determinant of survival and wellbeing. Around half of Canadians aged 80 and older live alone and more senior women live alone than senior men. The link between different social ties and central obesity in women and men is poorly understood, and the interplay of different social ties is seldom studied. This population-based study examined multiple structural social ties in relation to waist circumference (WC) among women and men in Canada.

Methods We used baseline data from the population-based Canadian Longitudinal Study on Aging (2012–2015) Comprehensive cohort of 28,238 adults (45–85 years), and gender-stratified multivariable linear regression models with interaction terms for each pair of social ties. Regression coefficients were used in post-estimation calculation of adjusted means and 95% confidence intervals.

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Results The association between marital status and waist circumference was altered by living arrangement, social network size and social participation, with different combined effects for women and men. All non-partnered women who were co-living had higher mean WC than partnered women who were co-living. Mean WC was higher in lone-living than in co-living women in all marital status categories except for widowed. Lone-living widowed women had a lower WC (-0.97 cm [-3.85, 1.91]), compared to lone-living partnered, that was significantly different (p-interaction=0.005) from co-living widowed women (+3.57 [2.26, 4.88]) relative to co-living partnered women. We found that men who were partnered, single, or widowed had higher mean WC when they were also lone-living compared to counterparts who were co-living. Social network size was positively associated with mean WC in women for all marital status categories, except divorced, whereas social participation was inversely associated with mean WC in women for all marital status categories, especially divorced. Combined effects were less clear in men. Greater social participation (5 or more activities) also appeared to mitigate the health-harming influence of having a low social network size on WC in women but not men. Specifically, in the absence of social participation, mean WC reduced by 0.63 cm (-0.88, -0.38) in women and by 0.27 cm (-0.51, -0.03) in men as social network size increased. Notably, living arrangement did not appear to modify the link between either social participation or social network size and WC in either gender.
Conclusion The interplay of different types of social ties revealed an important source of heterogeneity with unique associations with visceral adiposity in women and men. Prevention efforts can be improved by understanding which modifiable social factors are most relevant for obesity in women and men.

P59 THE EFFECT OF CHILDHOOD OBESITY AND OVERWEIGHT ON EDUCATIONAL OUTCOMES: AN INTERDISCIPLINARY SECONDARY ANALYSIS OF THREE UK COHORTS

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Background Childhood obesity has been shown to affect human capital and social outcomes later in life. Yet, evidence of the causal nature of this link is scarce and pathways are not well understood. We aimed to investigate the effect of childhood obesity on cognitive performance in adolescence and educational attainment in early adulthood.
Methods We used data of three longitudinal UK cohorts: the1958 National Child Development Study (NCDS; n=5346), the 1970 British Cohort Study (BCS70; n=6790) and the Avon Longitudinal Study of Parents and Children (ALSPAC; n=5373) which includes children born in1991–92. We used ordinary least squares and logistic regression, value-added sex-stratified models, and mendelian randomisation models to explore the effect of childhood body-mass index (BMI; Z score and BMI category at age 11 years or at 16 years) on cognitive performance (Maths and English scores at age 16 years) and educational attainment (tertiary qualification at age 23 years).
Results In ALSPAC, female individuals who had been overweight at age 11 years scored 1·00 point (95% CI –1·58 to –0·36; p=0·028) less on their maths GCSE exam than their healthy-weight peers, and girls who had been obese at age 11 years scored 1·66 points (–3·15 to –0·18; p=0·0021) less. Female individuals who had been obese at age 11 years were less likely to graduate from university than their healthy-weight peers (odds ratio [OR] 0·75, 95% CI 0·59 to 0·97; p=0·030); the effect on graduation for those who had been overweight was less conclusive (OR 0·85, 0·71 to 1·01; p=0·060). Male individuals who had been overweight scored 1·21 points (95% CI –2·84 to –0·81; p=0·0011) less and those who had been obese 2·24 points (95% CI –3·46 to –1·02; p<0·0001) less on their GCSE maths exam than their non-obese peers, but there was no association between male childhood weight and university graduation (overweight: OR 1·07, 0·95 to 1·21; p=0·26; obesity: OR 0·89, 0·66 to 1·21; p=0·47). In BCS70 and NCDS, there was a positive but insignificant relationship between overweight/obesity and cognitive performance but no significant findings for educational attainment.
Conclusion Our findings are robust to various causal methods and might help inform interventions to address this issue. Cross-cohort comparisons suggest that there might be a generational effect of overweight and obesity on educational outcomes. The youngest cohort was more susceptible to the negative consequences of childhood overweight and obesity, but the oldest cohorts were not. This needs to be explored in further research.

P60 JOB STRAIN AND PERIPHERAL ARTERY DISEASE: A MULTI-COHORT STUDY

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Background Job strain is implicated in many cardiovascular diseases, including coronary heart disease and stroke. However, its role in peripheral artery disease (PAD), a major cause of cardiovascular morbidity worldwide, is unclear. We investigated the longitudinal association of job strain with PAD, using individual-level data from 11 prospective, register-linked cohort studies from Finland, Sweden, Denmark and the United Kingdom.
Methods Job strain (a combination of high demands and low control at work) was self-reported at baseline (1985–2008) and PAD diagnoses during the follow-up were ascertained from national hospital registers. Individuals with a pre-baseline hospital record of PAD were excluded from the analyses. Data on job strain, PAD and covariates were harmonised across the studies. We used Cox regression to examine the associations of job strain with PAD in each study in turn, adjusting the association estimates for age, sex, socioeconomic position, tobacco smoking, alcohol intake, body mass index and leisure time physical activity. The study-specific estimates were combined using random effects meta-analyses. Heterogeneity was quantified using τ-squared and I-squared and potential sources for heterogeneity were examined by stratification and meta-regression analyses.
Results Our analyses were based on data from 139,132 men and women, aged 17–70 years. Of these participants, 32,489 (23.4%) reported job strain at baseline. During

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