Structural equation modelling proved a useful method for exploring and quantifying realist theory. The analysis was limited by available data; therefore future research would benefit from primary data collection.

P32 EXPERIENCES OF WOMEN FROM A LOWER SOCIOECONOMIC BACKGROUND WHEN USING HEALTHY EATING MOBILE APPS: A QUALITATIVE INTERVIEW STUDY

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Background Mobile apps offer a potentially effective approach to support healthier food behaviours if adequately designed and informed by behaviour change theory. Individuals from a lower socioeconomic background often report unhealthier dietary patterns and consequently may benefit from a mobile app intervention supporting healthier food behaviours. However, there is limited evidence available on the use of mobile health apps in this group. Previous work suggests that a reasonable standard of health and nutrition literacy is required for effective use of existing healthy eating mobile apps but this knowledge is often low in those from a lower socioeconomic background. Consequently, it is unclear if existing mobile apps are appropriate for this population group. The aim of this study is to explore the experiences of women from a lower socioeconomic background when using healthy eating mobile apps and the individual-level and mobile-specific factors that influence their experiences.

Methods A purposive sample of 15 women from a lower socioeconomic background and aged between 18–50 years were selected to participate. Participants completed a questionnaire assessing nutrition knowledge before using the assigned mobile apps. A total of three mobile apps were assessed in this study and were of varying quality in relation to nutrition content, behaviour change and user quality. Each participant was assigned to use two different mobile apps and used each for one week only. Assignment order was randomised. After the two-week period, semi-structured interviews were conducted with participants to discuss their experiences. Interviews were audio-recorded, transcribed verbatim, and analysed using a thematic analysis approach.

Results Preliminary analysis suggests that overall mobile app quality is adequate but there is a need to improve the customisability of mobile apps to ensure they fit users' needs. The food lives of participants vary and mobile apps need to be flexible to reflect this variety for integration of mobile apps into everyday life. The language used in a mobile app was a reason for discontinuing use as it was not clearly understood by users or was viewed as irrelevant.

Conclusion Existing mobile apps may support healthier food behaviours in women from a lower socioeconomic background but changes in design may be required. A user-centred approach is recommended where users from a lower socioeconomic background are engaged at all stages of the design process. This may improve their relevance to this population group and increase their effectiveness in supporting healthier food behaviours.

P33 WORKING UPSTREAM: EXAMINING A CENTRAL IDEA IN ADDRESSING HEALTH INEQUALITIES

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Background Health inequalities are variations or differences in health that are systematic, socially produced and unfair. Despite an improved understanding of the causes of health inequalities, there is an overreliance on individual level interventions, often in the form of behaviour change or lifestyle interventions. It is increasingly recognised that in order to reduce health inequalities, there is a need to engage in more 'upstream' action. However, as action to reduce health inequalities becomes progressively more interdisciplinary, it is unclear the extent to which there is consensus as to what constitutes 'upstream' working to reduce health inequalities.

Methods The aim of this study is to examine interdisciplinary conceptualisations of upstream action to reduce health inequalities. Conceptualisations of upstream action have been identified through (i) a review of the literature and (ii) semi-structured interviews with researchers, practitioners and members of the public actively involved in research and practice to reduce health inequalities in the North West of England. This study is being undertaken as part of an MPhil/PhD study. Interviews and data analysis are ongoing.

Results There exist multiple different, but related, conceptualisations of upstream action. Examples include upstream action as any intervention focusing on prevention; 'low agency' or 'population' interventions; action on the social determinants of health; and grass roots or bottom up action that involves shifting the balance of power from individuals making decisions to individuals who are affected by decisions. There is a distinction that can be made between 'upstream determinants' of health and health inequalities, and 'upstream action', whereby people or interventions located 'downstream' can act to influence more upstream determinants of health inequalities.

Conclusion There is a need to further unpack, and clarify, what we understand by 'upstream action', and the ways in which such actions produce their effects, to assist researchers and practitioners to operationalise and embed these seminal ideas into their day to day practice.

P34 EXPLAINING DIFFERENCES IN CARDIOVASCULAR DISEASE MORTALITY BETWEEN LOCAL AUTHORITIES IN ENGLAND

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Background Substantial inequalities in age-standardised cardiovascular disease (CVD) mortality rates exist at the local authority (LA) level within England, with particular areas having consistently higher rates. Higher deprivation is associated with higher CVD mortality, but we know little about how the demographics and environments of LAs contribute to variations in mortality rates. Our aim was to explore the extent to which demographic, behavioural and environmental factors

explain differences in all ages and premature CVD mortality between LAs in England.

Methods All data were sourced for each LA in England. Outcome variables were age-standardised 2012 to 2014 CVD mortality for all ages and those under 75 (premature mortality). Prevalence of ethnic and socioeconomic groups from the UK 2011 census, Public Health England data on index of multiple deprivation (IMD) score, prevalence of smoking, physical activity and obesity/overweight and Ordnance Survey environmental data on percentage of food shops, eating out shops, green/blue space, sporting facilities and health facilities were sourced. We used the Akaike Information Criterion (AIC) to assess which types of variables provided the best statistical model to explain variation in CVD mortality between LAs then used multiple linear regression to assess which variables remained associated with the outcome.

Results Including health, demographic, environment and IMD variables provided the best fit for explaining variation in CVD mortality at all ages, with an adjusted R² of 0.63. For premature CVD mortality, excluding environmental data improved the fit of the model and gave an adjusted R² of 0.82.

The percentage of Indian and Pakistani ethnic groups in LAs remained associated with all ages CVD mortality, along with higher scores for the employment domain and living environment domain of the IMD. For premature mortality, the percentage of Pakistani and Bangladeshi ethnic groups, excess weight prevalence and higher income and crime IMD scores remained associated.

Conclusion Certain IMD domains and prevalence of some South Asian ethnic groups are important for explaining variation in age-standardised cardiovascular disease mortality at the LA level in England. These findings are valuable for understanding which factors to target to reduce inequalities in CVD mortality between LAs in England.

P35

ARE PATIENT OUTCOMES IMPROVING? MAJOR AMPUTATION AND DEATH FOLLOWING LOWER LIMB REVASCULARISATION PROCEDURES IN ENGLAND

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Background Availability and diversity of lower limb revascularisation procedures have increased in the past decade, coinciding with the reconfiguration of vascular services in the United Kingdom. The aim of our study was to investigate whether these developments in care have translated to improvements in patient outcomes.

Methods We used data from Hospital Episode Statistics (HES) to identify patients who underwent endovascular or surgical (endarterectomy, profundaplasty or bypass) lower limb revascularisation for infrainguinal peripheral arterial disease (PAD) in England in 2006–2013. Major lower limb amputations and deaths were ascertained from HES and Office for National Statistics mortality register. Associations of revascularisation procedures with amputation and death outcomes were investigated using Fine-Gray competing risks regression, with adjustment for patient age, sex and comorbidity score. We examined the possible impact of patient selection by stratifying

our analyses by indication for revascularisation (intermittent claudication only; severe limb ischaemia without tissue loss; severe limb ischaemia with ulceration; severe limb ischaemia with gangrene).

Results Over the 8 year study period the overall number of endovascular revascularisations increased and the number of surgical procedures decreased: the evidence for this trend was the clearest among patients with the most severe underlying disease (severe limb ischaemia with ulceration or gangrene). The 1 year risk of major amputation reduced from 5.9% (in 2006–07) to 5.5% (in 2012–13) following endovascular revascularization and from 10.8% (2006–07) to 7.4% (2012–13) following surgical procedures ($p < 0.0001$). The risk of death after both types of procedures also decreased, whilst the number of comorbidities and the proportions of patients with more severe underlying disease increased.

Discussion Our findings suggest that patient outcomes following lower limb revascularisation have improved during a period of centralisation and specialisation of vascular services in the United Kingdom, despite higher morbidity and an increasing proportion of patients treated for the severe end of the PAD spectrum.

P36

IS IT FEASIBLE TO EVALUATE CARDIAC MRI IN PATIENTS WHO ACTIVATE THE PRIMARY PERCUTANEOUS CORONARY INTERVENTION PATHWAY USING HOSPITAL EPISODE STATISTICS DATA?

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Background Cardiac magnetic resonance (CMR) imaging is a non-invasive test used to assess the structure and function of the heart. We tested the feasibility of assembling a retrospective cohort study of patients who activate the primary percutaneous coronary intervention (PPCI) pathway using data from Hospital Episode Statistics (HES) and Patient Episode Database Wales (PEDW) to: i) document the use of cardiac magnetic resonance (CMR) imaging in this population; and ii) determine whether CMR is associated with improved clinical outcomes.

Methods Patients from four UK sites were recruited into the prospective cohort study. We assembled a database by linking routinely collected hospital data for the index PPCI admission (demography, clinical, biochemistry and imaging) with HES and PEDW describing inpatient and outpatient NHS episodes in the 12 months following the index PPCI admission. We determined whether we could identify the following from HES/PEDW data: i) the index event (cohort entry); ii) CMR within 10 weeks of the index event (exposure); iii) relevant subgroups of the population (e.g. PPCI, unobstructed coronary arteries, multivessel disease, cardiac arrest, etc.); and iv) clinical outcomes.

Results A total of 1670 patients were recruited prospectively into the cohort study; of these 1612 (97%) had admission data in HES/PEDW that coincided with the index event (± 1 day). Only 1227/1612 (76%) had HES/PEDW data that met the criteria for cohort entry; 1110 (91%) were identified as PPCI and 117 (9%) were identified as emergency angiography only. The remainder (385/1612, 24%) did not meet inclusion criteria (PCI procedure code and ST-elevation myocardial