industry to ensure that the powerful effects of salt reformulation are realised.

OP96 YOUNG PEOPLE'S EXPERIENCES OF NON-BROADCAST ADVERTISING OF UNHEALTHY FOOD

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Background Critics argue that regulation of non-broadcast advertising for foods high in fat, sugar and salt (HFSS) offers less protection to children than regulation of broadcast advertising. This is concerning as viewing habits now exist across a range of media platforms. There is a lack of research engaging with young people about the shifting nature of advertising for foods HFSS, particularly those aged 12–15 as they are often not included in industry self-regulatory initiatives. The study aims were to identify: 1) where young people experience advertising for foods HFSS; 2) their perceptions of this form of advertising; 3) the ways in which they believe they are influenced by this advertising.

Methods We interviewed 65 UK 12–15 year olds in 15 focus groups. Participants were recruited using snowball sampling techniques from initial local adult contacts. Potential participants were provided with a study summary sheet, and those who agreed to participate were asked to recruit a group of friends to take part in a discussion. Participants were drawn from a range of social backgrounds. Groups were held within participant's homes or within the University. All focus groups were audio-recorded. Topics included leisure time, viewing habits, and the perceived impact of advertising. Young people were shown a range of broadcast and non-broadcast advertising to stimulate discussion. Interview transcripts were analysed thematically.

Results Young people reported that they rarely watched live television, and instead engaged in leisure activities that included watching programming via subscription services, and watching and socialising on digital platforms (such as video websites and social media). They recalled seeing extensive advertising for foods HFSS in non-broadcast media, both on- and offline. Participants reported scepticism and mistrust towards the healthfulness of many advertised foods. Nonetheless they believed they were influenced to purchase foods HFSS based on emotive techniques, such as togetherness, and were attracted to high quality advertising campaigns that made use of various techniques such as music, colour and humour.

Conclusion Young people encounter advertising of foods HFSS across a wide range of non-broadcast media. It both attracts and frustrates them. Many young people believed advertising influenced their purchasing of food and drink. Regulation of non-broadcast advertising for foods HFSS must be updated to reflect these new and diverse viewing practices.

Cardiovascular disease

OP97 THE BURDEN OF HYPERTENSION AND ITS ASSOCIATED FACTORS IN THE GAMBIA: DATA FROM A NATIONAL HEALTH EXAMINATION SURVEY USING THE WORLD HEALTH ORGANISATION (WHO) STEPWISE APPROACH

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Background Non-communicable diseases are increasing in sub-Saharan Africa (SSA). They are estimated to account for 32% of deaths in The Gambia according to the WHO. Worldwide, prevalence of hypertension is highest in the African region (46%) and a very high proportion is undiagnosed. There is very limited up-to-date information on the burden of diagnosed and undiagnosed hypertension and associated risk factors in The Gambia. This study aims to examine cardiovascular risk factors in in The Gambia adult population, with a particular focus on diagnosed and undiagnosed hypertension.

Methods Data was collected from a random, nationally-representative sample of 4111 participants aged 25–64 years (78% response rate) in 2010 using the WHO STEPwise survey methods. Analysis was restricted to non-pregnant participants with three valid blood pressure (BP) measurements ($n=3573$). All analysis were weighted and adjusted for complex survey design using STATA14. The mean of the second and third BP measurements was used in the analysis. Hypertension was categorised into measured (SBP ≥ 140 mmHg and/or DBP ≥ 90 mmHg) and total (SBP ≥ 140 mmHg and/or DBP ≥ 90 mmHg and/or self-reported hypertension). Among people with total hypertension, we also looked at undiagnosed hypertension (proportion of participants with hypertension not aware of their status). Univariate and multivariate regression models were run to identify the most important factors associated with hypertension including sex, age, rural/urban residence, socioeconomic and anthropometric factors. Smoking status and fruit and vegetable intake were additional covariates.

Results One third of adults were hypertensive; this was higher in rural regions (40%, $p<0.001$). Multivariate analysis revealed increased odds of total hypertension among the overweight/obese and rural residents. Abdominal obesity (OR1.8 [95% CI, 1.2–2.7]), rural residence (3.0 [1.6–5.5]), and age were the most important predictors among men while in women it was generalised obesity (2.4 [1.6–3.7]), rural residence (2.5 [1.4–4.5]), and age. More than three-quarters of hypertensive participants were undiagnosed: this was higher among males (86% vs 71%, $p<0.001$). Men (3.1 [1.7–5.6]) and participants aged 25–34 years (4.8 [1.4–3.5]) had higher odds of undiagnosed hypertension after adjusting for other factors. However, obesity was protective for undiagnosed hypertension (0.4 [0.2–0.6]).

Conclusion Contrary to what is found in similar studies in SSA, where hypertension is highest in urban areas, we found that rural residence, abdominal obesity among men and generalised obesity among women were the most important predictors of hypertension. Intervention to reduce hypertension could be further targeted towards rural areas. Sensitisation campaigns should promote awareness of the risk factors, especially on the importance of maintaining a healthy weight.

OP98

REVISITING EARLY LIFE DEPRIVATION AND CARDIOVASCULAR DISEASE: AN ECOLOGICAL STUDY OF HISTORICAL TRENDS IN ECONOMIC DEVELOPMENT AND CURRENT CARDIOVASCULAR MORTALITY IN 1577 BRAZILIAN MUNICIPALITIES

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Background Ecological findings from Europe in the 1970s demonstrated an interaction between deprivation during early life and adult cardiovascular disease (CVD) mortality. These findings hold renewed significance today in the context of emerging epidemics of CVD in rapidly developing countries. If generalizable to such settings, understanding of the interaction between early life deprivation and CVD mortality might improve disease projections and targeting of resources to high risk areas. To investigate this, we studied economic development rates since 1940 and current CVD mortality in Brazil.

Hypothesis Currently, higher GDP/capita is associated with higher CVD mortality at municipality level in Brazil. We hypothesised that if deprivation was a risk factor for CVD mortality during the early life period, municipalities which have undergone the greatest shifts from low to high GDP/capita in the past 50–70 years would have higher CVD mortality rates today than those with consistently high or low GDP/capita.

Methods We used municipality-level data on deaths, demographics and gross domestic product (GDP) from the Brazilian Institute of Geography and Statistics. Our primary outcome was CVD mortality rate in 2005–14, defined and adjusted according to the WHO Global Burden of Disease protocol. We compared the trajectory of municipality GDP/capita between time of birth and time of death, defined by tertiles of GDP/capita at each time point. Analyses were age-standardised and stratified by sex. Municipalities were grouped to reflect 1940s borders and excluded where this was not possible. We conducted analyses on R.

Results In 1557 included municipalities, 367 had a low-low GDP/capita trajectory, 44 had low-high and 329 had high-high. Age-adjusted CVD mortality rates for >50 year-olds, per 1 00 000 person years, in low-low, low-high and high-high trajectory municipalities, respectively, were 656.7 (95%CI: 636.2, 677.2), 758.2 (95%CI: 713.8, 802.5) and 821.9 (95%CI: 810.7, 833.2) among men (p-value trend test <0.001); and 447.0 (95%CI: 430.5, 463.4), 414.4 (95%CI: 383.5, 445.3) and 449.5 (95%CI: 442.0, 457.0) among women (p-value trend test >0.1). These findings were not substantially altered in sensitivity analyses checking for the potential effects of internal migration.

Conclusion Contrary to what we hypothesised, Brazilian municipalities which have shifted from low to high GDP/

capita did not exhibit higher rates of CVD mortality than consistently high or low municipalities. This reminds us to be cautious extrapolating evidence generated in high-income settings to rapidly developing settings where social and economic contexts surrounding CVD differ markedly. Further individual-level studies with robust designs are needed, as inference from ecological studies has limitations.

OP99

PSYCHOLOGICAL DISTRESS AND INCIDENT STROKE RISK IN THE 45 AND UP STUDY

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Background Few studies have reported on the association between psychological distress and stroke risk, with most investigating the effect of psychological distress on stroke mortality rather than incidence. We investigated whether psychological distress is associated with stroke incidence in a large population-based cohort study and examined whether associations differed by gender, age-group and pathological stroke type.

Methods We included 2 28 955 participants without prior stroke from the New South Wales 45 and Up Study. Baseline psychological distress was measured using the 10-item Kessler psychological distress Scale and categorised as low, medium, and high/very high. We identified incident stroke through linkage to hospital admission and mortality records. We analysed men and women separately, using cox survival analysis to obtain unadjusted and adjusted hazard ratios (HRs) with 95% confidence intervals (CIs) for the association between psychological distress and all stroke and pathological stroke types. We serially adjusted for groups of confounders, including: sociodemographic factors; lifestyle factors; clinical disease history; family history of cardio- and cerebrovascular disease; physical disease co-morbidity (Charlson comorbidity index); and (among women) menopausal status and current hormone replacement therapy and oral contraceptive use.

Results During 1,075,057 person-years of follow-up (mean follow-up time 4.7±0.98 years), we identified 2682 incident strokes among men and women. In men, medium and high/very high psychological distress was associated with a 10% and 34% increased risk of stroke compared to low psychological distress (fully adjusted HRs 1.10, 95% CI 0.95, 1.26 and 1.34, 95% CI 1.11, 1.62, respectively). Similar effect estimates were observed in women (fully adjusted HRs for medium and high/very high versus low psychological distress: 1.17, 95% CI 1.00, 1.37 and 1.44, 95% CI 1.18, 1.77). Effect estimates were similar across age-groups and pathological stroke type, in both men and women.

Conclusion Psychological distress is strongly associated with increased stroke risk, even after adjusting for a wide range of confounding factors. Further investigation is needed to establish whether this relationship is causal and to determine the underlying mechanism(s). Meanwhile, study findings support the need for renewed efforts: to encourage people with mental ill-health to seek medical help; for better screening and treatment for mental health conditions (which might itself reduce cerebrovascular and cardiovascular disease risk); and to