

**P42 THE IMPACT OF A CATERING INITIATIVE IN DETERMINING FOOD CHOICES AND SALT INTAKE IN THE PUBLIC SECTOR**

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**Background** The epidemic of obesity and diet-related chronic diseases are due to a considerable increase in energy intake from sugar, fat and salt in addition to a decreasing level of physical activity. Due to changes in modern lifestyles, individuals now depend on out-of-home eating. There is evidence that the catering sector can have a pivotal role in influencing our food choices.

**Objective** To examine whether a structured catering initiative could significantly determine food choice and salt intake in the public sector.

**Design** A cross-sectional comparison study in two hospitals, one of which had implemented a catering initiative focused on reducing sugar, salt and fat intakes.

**Setting** Two public sector hospitals in Cork, Ireland.

**Subjects/Methods** A total of 100 random participants aged 18–64 years (fifty, intervention and fifty, non-intervention) who consumed at least one main meal in the hospital staff canteen daily. Each respondent was asked to complete one anonymous 24 h dietary recall and a questionnaire. Food and nutrient analysis was conducted using WISP© (Weighed Intake Software Program; Tinuviel Software, Warrington, UK).

**Results** Reported mean intakes of total fat ( $p<0.000$ ), saturated fat ( $p<0.000$ ), salt ( $p<0.046$ ) and total sugars ( $p<0.001$ ) were significantly lower in the intervention hospital when adjusting for age and gender. In the intervention hospital, 43% of respondents exceeded the recommended salt intake of 4–6 g/day vs 57% of respondents in the non-intervention hospital. Significantly, 72% of respondents in the intervention hospital vs 42% in the non-intervention hospital complied with the recommended under-3 daily servings of foods high in fats and sugar (eg, oils, butter and cakes) ( $p<0.005$ ).

**Conclusion** A hospital with a structured catering initiative can serve as a supportive environment to aid the determination of nutritious food choices and reduced salt intake. More public health efforts and health policy changes are needed to motivate caterers in the public sector and other industries into developing interventions that cater to a healthy diet.

**P43 DIETARY SALT INTAKE IN IRISH ADULTS**

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**Objectives** To estimate dietary salt intakes in the Irish population, including variation by age, sex, and measures of obesity.

**Design** Two cross-sectional studies.

**Settings and Participants** (i) A nationally representative household sample of 10364 adults, 62% response rate (SLAN study), (ii) samples of adults aged from 18–81 years ( $N=599$ ) recruited from the general population, a worksite screening exercise and third level students (Safefood study).

**Intervention** In both studies, participants underwent physical measurements including height, weight, and waist circumference and in both studies energy intake, macronutrients and dietary sources of salt were estimated by means of a standard Food Frequency Questionnaire. In the SLAN study, random urine samples were obtained from 1207 men and women aged 45 years and older. In the Safefood study, participants provided one 24-h urine

collection. Completeness of urine samples were validated using a biomarker, para-amino benzoic acid (PABA).

**Main Outcome Measures** Estimates of salt intake in Irish adults by age, gender, and levels of obesity and the proportion of total salt intake associated with major food groups.

**Results** Using SLAN study, random urine samples corrected for urine volume the estimates (mean (SD), median) for salt intake per day in adults aged over 45 years were as follows: men, 10.3 g (5.0), 9.7 g and women, 7.4 g (4.2), 7.1 g. Estimated dietary salt intake (mean (SD), median) based on PABA validated 24 h urine collections was 9.3 g/day (4.1), 8.5 g/day with higher intakes in men: 10.4 g/day (4.3), 9.7 g/day than in women: 7.4 g/day (2.7), 7.1 g/day. 86% of men (95% CI 82% to 90%) and 67% of women (95% CI 60% to 74%) consume more than 6 g salt per day (current tolerable upper limit). Significant variation in salt intake with age was not detected in the PABA validated samples. Dietary salt intake was significantly associated with general and central obesity in both men and women in analyses adjusted for calorie intake. The food groups contributing most to salt intake were cereals, breads, meat, fish and poultry products, which together account for over 50% of salt intakes.

**Conclusions** Dietary salt intakes in Irish adults remain high, with the majority of the population exceeding the current tolerable upper limit of 6 g per day. At the group level, estimates of salt intake based on random urine samples are similar to those derived from validated 24-h urine collections.

## Ethnicity

**P44 THE INFLUENCE OF ACCULTURATION ON ETHNIC DIFFERENCES IN OBESITY IN ENGLAND**

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**Background** Ethnic differences in obesity have been well documented, but comparatively little is known about whether these differences vary according to the degree of exposure to the new environment following migration.

**Objectives** To investigate the extent of generational differences in adult health-related lifestyles and socioeconomic circumstances, and explore whether these differences might explain changing patterns of obesity in ethnic minorities in England.

**Method** Seven ethnic minority groups were selected from the ethnically boosted 1999 and 2004 Health Survey for England (Indian  $n=887$ ; Pakistani  $n=603$ ; Bangladeshi  $n=275$ ; Black Caribbean  $n=762$ ; Black African  $n=147$ ; Chinese  $n=413$ ; and Irish  $n=1438$ ). A White group was used as a reference population ( $n=5899$ ). Age and sex adjusted logistic regression estimated the odds of having a poor health behaviour in the second generation compared to the first. Age- and sex-adjusted odds of being obese in the second generation compared to the first were estimated before and after adjusting for generational differences in health related behaviours (snacking, eating cakes and fried foods, having low levels of physical exercise, any drinking including binges, current smoking status) and socio-economic factors (social class, equivalised income and highest qualification).

**Results** Overall, second generation ethnic minority men and women were significantly more likely than the first to have low vegetable consumption (<one portion/day), snack daily on chocolate, crisps, biscuits and cakes, be current drinkers and binge drink. Second generation women were more likely to currently smoke than the first generation. Conversely, men and women were significantly less likely to have low levels of physical activity in the second generation. However, there were considerable variations in the uptake of

these behaviours within individual groups. Indian (OR: 1.76; 1.14, 2.71) and Chinese (OR: 3.65; 1.37, 9.78) groups were more likely to be obese in the second generation than the first after adjusting for age and sex, with no significant differences observed in all other groups. Adjusting for health behaviours in each ethnic minority group had a negligible impact on the risk of second generation obesity. However, the risk of obesity increased in all groups after adjusting for the better socioeconomic circumstances of the second generation.

**Conclusions** Socioeconomic shifts determine generational differences in obesity risk to a greater extent than acculturative changes in behaviours. Findings suggest that generational variation in obesity rates for ethnic minorities may be more effectively controlled through reductions in wider socioeconomic inequalities rather than targeting individual health related behaviours.

**P45 REGIONAL COMPARISON OF SOCIOECONOMIC AND ENVIRONMENTAL PROFILES OF FAMILIES WITH PREGNANT WOMEN IN THE ALL IRELAND TRAVELLER HEALTH STUDY**

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**Objective** Travellers have been documented as a distinct group in Irish society for centuries. They experience significant socio-economic and health disadvantage particularly pertinent to pregnancy and early childhood development. This analysis contrasts the socio-economic and environmental profiles of "families with a resident pregnant woman" (FRPW) to other Traveller families and according to two distinct geopolitical regions.

**Setting** Census survey of the All Ireland Traveller Health Status Study of 10 618 Traveller families in the Republic of Ireland (ROI) and Northern Ireland (NI).

**Methodology** Cross-sectional descriptive analysis of all FRPW in recruitment stage of prospective birth cohort study.

**Results** General comparison of socio-economic indicators showed marked differences between regions. There were 42 FRPW in NI (2.7% of all census families), 670 (7.4%) in ROI. FRPW family size was smaller in NI (mean 2.7, median 2, SD 1.9) compared to ROI (mean 4.1, median 4, SD 2.6) ( $p=0.001$ ). Literacy rate was better in FRPW compared to non-FRPW in ROI but not in NI. However, there were no differences in literacy and numeracy rates for FRPW between regions. More FRPW in NI than ROI live in caravan/mobile home/trailer (40.5% NI vs 20% ROI,  $p<0.001$ ); stayed for shorter period in their current accommodation (47.6% NI vs 33.5% ROI,  $p=0.002$ ) and were forced to move by local community (12.2% NI vs 2.6% ROI,  $p<0.001$ ). FRPW in NI have better private transport ownership (83.3% vs 79.6% ROI,  $p<0.001$ ). There was a greater lack of general public facilities for example, working public lighting and fire hydrants, and more problems with living environment for example, lodged water (22.9% ROI vs 10% NI) and living near a road side (48.4% ROI vs 35% NI) (all  $p<0.001$ ) in ROI compared to NI. These varied across the type of accommodation and may be associated with poor quality living accommodation. There was a significant difference in the reporting of perceived "very unhealthy/unhealthy" (40.5% NI vs 25.3% ROI;  $p<0.001$ ) and "very unsafe/unsafe" (40.5% NI vs 27.3% ROI) living environment.

**Conclusion** FRPW suffer from different socioeconomic and environmental amenity disadvantages in the regions; such differences may reflect overall regional differences rather than be related specifically to pregnancy. In both jurisdictions health needs are considerable with significant policy indications.

**P46 ETHNIC DIFFERENCES IN PACE OF GROWTH BETWEEN BIRTH AND 5 YEARS: RESULTS FROM THE MILLENNIUM COHORT STUDY**

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**Objective** Size at birth and accelerated postnatal growth are linked to obesity and cardiovascular disease (CVD) in adulthood. CVD is more common in Black African and South Asian origin populations in the UK. Little is known about growth trajectories of ethnic minority children in the UK. Overweight is more common in some ethnic minority groups in adolescence. We examined ethnic differences in growth between birth and 5 years (y).

**Design** Millennium Cohort Study, a UK population-based cohort study.

**Setting** England.

**Participants** White (6361), Black Caribbean (152), Black African (250), Indian (328), Pakistani (645) and Bangladeshi (265) infants born in 2000–2001,  $\geq 2500$  g,  $\geq 36$  weeks gestation, with no physical disability.

**Main Outcome Measures** Weight, height, body mass index (BMI) and age-standardised Z-scores (based on the British 1990 growth reference). Weight was measured at birth, 9 months, 3 y and 5 y and linear mixed models were used to estimate differences in the weight trajectories and to identify potential differential effects from maternal characteristics (age and smoking status at delivery, education, psychological well-being, diabetic status), household socio-economic circumstances (SEC) (employment, poverty level), and feeding practices (duration of breastfeeding, age at first solid food).

**Results** Compared with White infants, mean birth weights of Indian, Pakistani Bangladeshi and Black Caribbean infants were lower by 180–410 g while that of Black African infants were similar. Relative to the standard, all ethnic groups experienced faster weight gain notably between 0–3 y. Average weight gains between 0–5 y were greater for Black Caribbeans (boys +0.88 sd/year, girls +0.37 sd/year) and Black Africans (+0.78/year, +0.30/year) than for Whites (+0.45/year, +0.17/year). The increase was non-linear with slowest weight gain as age increased especially for Black Caribbeans and Africans boys ( $-0.18$  sd/y<sup>2</sup>, 95% CI  $-0.23$  to  $-0.14$ ). By age 5 y, these groups were the heaviest but also the tallest. Larger BMIs were observed for Black Caribbean boys (1.32, 0.71 to 1.94) and Black African girls (0.97, 0.72 to 1.22) than their White peers. At this age, Black Caribbean boys (56.2 cm, 53.9 to 58.6) and Black African girls (55.8 cm, 54.7 to 56.8) also had larger waist circumference than Whites (boys 53.7 cm, girls 53.5 cm). There were no ethnic specific effects from maternal factors, household SEC or feedings practices.

**Conclusions** A pattern of lighter birth weights and rapid growth was observed for Black Africans origin children compared with White children. The growth patterns observed here may be pertinent to the development of ethnic differences in CVD.

**P47 COUNTRY OF BIRTH OF MOTHER AND RATES OF PRETERM BIRTHS AND LOW BIRTH WEIGHT IN ENGLAND AND WALES OF BABIES OF AFRICAN AND CARIBBEAN ETHNICITY**

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**Introduction** Preterm birth and low birth weight are associated with high rates of perinatal and neonatal morbidity and mortality. Some studies have shown associations between ethnic origin or country of