yearly trend in the percentage of the population with body mass index (BMI) in normal-weight (BMI<25), over-weight (BMI 25–29.9), and obese (BMI>30) ranges, is modelled using multinomial logistic regression, stratifying by gender and age group (20–39, 40–59,>60 years). The fitted models are used to compare trends between states and to forecast levels of obesity in the future. A previously developed micro-simulation model is used to assess the burden of 13 diseases caused by obesity and estimate the economic impact implied by the forecasted trends. Data of the US–National Health and Nutrition Examination Survey collected over the same period are used to investigate the extent of self-reporting bias in BRFSS.

**Results** In 2010, the proportion of obese (BMI>30) men and women in the US was 33% and 35%, respectively, whilst the proportions of over-weight (BMI 25–30) were 42% and 34%. The fitted models forecast an increase in the proportion of obese individuals to up to 70% by 2030. The results reveal increasing levels of obesity in all states, although the rate of increase varies among states. Comparing BRFSS data with data from NHANES, showed that at all ages both men and women slightly over-report their height, whilst women under-report their weight by 5kg on average. Under-reporting of weight is reduced after age 65.

**Conclusion** Obesity rates are rapidly and steadily increasing in the US posing a threat to population health and a substantial economic burden. As self-reporting bias may significantly underestimate BMI in women, the estimated burden of obesity may be conservative.

**OP28 DIET QUALITY AND BLOOD PRESSURE IN MIDDLE-AGED MEN AND WOMEN**

J Harrington, AP Fitzgerald, PM Kearney, VJC McCarthy, G Browne, LJ Perry, Epidemiology & Public Health, University College Cork, Cork, Ireland

**Background** Findings from both observational and experimental studies (including the DASH Trial –Dietary Approaches to Stop Hypertension) are consistent with a significant, causal role for dietary salt intake in the distribution of blood pressure (BP) in populations. The DASH diet quality score, based on the intervention arm in the DASH-trial, has emerged as a potentially useful measure of diet quality in adult populations. We have studied associations between DASH score and blood pressure, both clinic and 24 hour ambulatory measurements (ABPM) in middle-aged men and women.

**Methods** We used cross-sectional data from two studies of men and women aged 50 to 69 years, recruited in 1998 (n=1018) and 2010 (n=2047). Participants completed a physical examination including three standardised clinical BP recordings and a general health and lifestyle questionnaire. A sub-sample (n=1189) in 2010 had 24hr ambulatory BP measurements (ABPM). Diet quality was assessed using a DASH score constructed from a standardised Willett FFQ. DASH scores were categorised into quintiles, with lower quintiles indicating less healthy diets. Hypertension was defined as clinic BP>140/90mmHg (mean of readings 2 and 3) and 24-hour ABPM>130/70mmHg.

**Results** Clear inverse trends were seen between DASH scores and systolic (SBP) and diastolic (DBP) BP in clinic and ABPM recordings. The associations between DASH score and clinic BP were similar in the 1998 and 2010 datasets. In the 2010 data, clinic SBP increased by 7.5 mmHg in men and 5.1 mmHg in women between the highest and lowest DASH quintiles and 24-hour ABPM systolic BP increased by 6.5mmHg and 5.4mmHg in men and women respectively between the highest and lowest DASH quintiles. In fully adjusted analyses, the odds ratios (OR) for clinic hypertension and ABPM hypertension in participants with DASH score in the first relative to the fifth DASH score quintile were as follows: clinic hypertension: OR 1.60 (95% CI 0.9–2.8), ABPM hypertension: OR 4.2; 95% CI [1.1–15.9]). Stratifying by gender, these trends persisted for men however they were attenuated for women.

**Conclusion** This study provides evidence of criterion validity for the use of DASH score as a measure of diet quality, especially in the diet-hypertension relationship in men. Our findings are consistent with the hypothesis that dietary patterns exert effects beyond the sum of the component parts. Public policy promoting a DASH-style healthy diet could have a significant impact on population health by reducing average blood pressure in the population.

**Socioeconomic Inequalities II**

**OP29 ETHNIC AND SOCIOECONOMIC INFLUENCES ON CHILDHOOD BLOOD PRESSURE: THE CHILD HEART AND HEALTH STUDY IN ENGLAND (CHASE)**

C Thomas, CM Nightingale, A Donin, AR Rudnicka, CG Owen, D Cook, PH Whincup. Division of Population Health Sciences and Education, St Georges University of London, London, UK

**Background** Findings from both observational and experimental studies (including the DASH Trial –Dietary Approaches to Stop Hypertension) are consistent with a significant, causal role for dietary salt intake in the distribution of blood pressure (BP) in populations. The DASH diet quality score, based on the intervention arm in the DASH-trial, has emerged as a potentially useful measure of diet quality in adult populations. We have studied associations between DASH score and blood pressure, both clinic and 24 hour ambulatory measurements (ABPM) in middle-aged men and women.

**Methods** We used cross-sectional data from two studies of men and women aged 50 to 69 years, recruited in 1998 (n=1018) and 2010 (n=2047). Participants completed a physical examination including three standardised clinical BP recordings and a general health and lifestyle questionnaire. A sub-sample (n=1189) in 2010 had 24hr ambulatory BP measurements (ABPM). Diet quality was assessed using a DASH score constructed from a standardised Willett FFQ. DASH scores were categorised into quintiles, with lower quintiles indicating less healthy diets. Hypertension was defined as clinic BP>140/90mmHg (mean of readings 2 and 3) and 24-hour ABPM>130/70mmHg.

**Results** Clear inverse trends were seen between DASH scores and systolic (SBP) and diastolic (DBP) BP in clinic and ABPM recordings. The associations between DASH score and clinic BP were similar in the 1998 and 2010 datasets. In the 2010 data, clinic SBP increased by 7.5 mmHg in men and 5.1 mmHg in women between the highest and lowest DASH quintiles and 24-hour ABPM systolic BP increased by 6.5mmHg and 5.4mmHg in men and women respectively between the highest and lowest DASH quintiles. In fully adjusted analyses, the odds ratios (OR) for clinic hypertension and ABPM hypertension in participants with DASH score in the first relative to the fifth DASH score quintile were as follows: clinic hypertension: OR 1.60 (95% CI 0.9–2.8), ABPM hypertension: OR 4.2; 95% CI [1.1–15.9]). Stratifying by gender, these trends persisted for men however they were attenuated for women.

**Conclusion** This study provides evidence of criterion validity for the use of DASH score as a measure of diet quality, especially in the diet-hypertension relationship in men. Our findings are consistent with the hypothesis that dietary patterns exert effects beyond the sum of the component parts. Public policy promoting a DASH-style healthy diet could have a significant impact on population health by reducing average blood pressure in the population.
Middle-Aged Men and Women

Diet Quality and Blood Pressure in

J Harrington, AP Fitzgerald, PM Kearney, VJC McCarthy, G Browne and IJ Perry

J Epidemiol Community Health 2012 66: A11
doi: 10.1136/jech-2012-201753.028

Updated information and services can be found at:
http://jech.bmj.com/content/66/Suppl_1/A11.2

These include:

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/