**Supplementary Table 1** Obesity and hypertension prevalence ratio across sex-specific tertiles (T) of dietary pattern for the full cohort and plausible energy reporters stratified by sex, age and BMI group1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Full cohort3 | | Plausible energy reporters4 | |
| PR (95% CI) | *P* for trend5 | PR (95% CI) | *P* for trend5 |
| **Overweight and obesity2** |  |  |  |  |
| Obesity-DP1 |  |  |  |  |
| All subjects | 0.97 (0.94. 1.01) | 0.10 | 0.96 (0.91, 1.01) | 0.11 |
| Males | 0.99 (0.95, 1.04) | 0.74 | 0.98 (0.92, 1.05) | 0.63 |
| Females | 0.95 (0.89, 1.00) | 0.06 | 0.93 (0.86, 1.00) | **0.048** |
| Age <50 years | 0.95 (0.90, 1.01) | 0.10 | 0.91 (0.84, 0.98) | **0.019** |
| Age ≥50 years | 1.00 (0.96, 1.05) | 0.90 | 1.02 (0.97, 1.07) | 0.50 |
| Obesity-DP2 |  |  |  |  |
| All subjects | 1.04 (1.00, 1.08) | **0.033** | 1.04 (0.99, 1.09) | 0.13 |
| Males | 1.02 (1.00, 1.06) | 0.08 | 1.01 (0.96, 1.06) | 0.65 |
| Females | 1.07 (1.00, 1.15) | **0.051** | 1.08 (0.99, 1.18) | 0.09 |
| Age <50 years | 1.07 (1.00, 1.14) | **0.048** | 1.06 (0.98, 1.15) | 0.15 |
| Age ≥50 years | 1.01 (0.96, 1.07) | 0.70 | 1.00 (0.94, 1.07) | 0.92 |
| **Central adiposity** |  |  |  |  |
| Obesity-DP1 |  |  |  |  |
| All subjects | 0.95 (0.91, 0.99) | **0.010** | 0.93 (0.88, 0.97) | **0.003** |
| Males | 0.96 (0.91, 1.03) | 0.23 | 0.91 (0.83, 0.99) | **0.030** |
| Females | 0.94 (0.90, 0.98) | **0.009** | 0.96 (0.90, 1.02) | 0.14 |
| Age <50 years | 0.96 (0.90, 1.02) | 0.14 | 0.91 (0.83, 0.99) | **0.031** |
| Age ≥50 years | 0.98 (0.94, 1.03) | 0.41 | 0.98 (0.93, 1.13) | 0.33 |
| Obesity-DP2 |  |  |  |  |
| All subjects | 1.03 (1.00, 1.07) | **0.076** | 1.02 (0.97, 1.06) | 0.44 |
| Males | 1.07 (1.02, 1.13) | **0.010** | 1.05 (0.99, 1.12) | 0.12 |
| Females | 0.99 (0.95, 1.03) | 0.68 | 0.98 (0.92, 1.05) | 0.57 |
| Age <50 years | 1.05 (0.99, 1.11) | 0.09 | 1.02 (0.95, 1.10) | 0.58 |
| Age ≥50 years | 1.00 (0.95, 1.06) | 0.90 | 1.00 (0.95, 1.06) | 0.96 |
| **Hypertension** |  |  |  |  |
| Hypertension-DP1 |  |  |  |  |
| All subjects | 1.09 (0.99, 1.19) | 0.07 | 1.16 (1.02, 1.31) | **0.021** |
| Males | 1.14 (1.01, 1.28) | **0.036** | 1.24 (1.05, 1.46) | **0.012** |
| Females | 1.02 (0.90, 1.17) | 0.72 | 1.08 (0.93, 1.26) | 0.29 |
| Age <50 years | 1.10 (0.92, 1.31) | 0.31 | 1.29 (1.00, 1.68) | **0.050** |
| Age ≥50 years | 1.03 (0.93, 1.15) | 0.57 | 1.05 (0.91, 1.22) | 0.51 |
| Normal weight (BMI <25 kg/m2) | 1.13 (0.92, 1.40) | 0.24 | 1.18 (0.89, 1.57) | 0.24 |
| Overweight/obese (BMI ≥25 kg/m2) | 1.10 (0.99, 1.23) | 0.08 | 1.19 (1.03, 1.37) | **0.019** |
| Hypertension-DP2 |  |  |  |  |
| All subjects | 0.95 (0.87, 1.05) | 0.29 | 0.95 (0.84, 1.07) | 0.41 |
| Males | 0.96 (0.84, 1.09) | 0.54 | 0.97 (0.80, 1.17) | 0.76 |
| Females | 0.95 (0.82, 1.09) | 0.45 | 0.94 (0.80, 1.10) | 0.43 |
| Age <50 years | 0.92 (0.77, 1.12) | 0.41 | 1.03 (0.82, 1.30) | 0.77 |
| Age ≥50 years | 1.01 (0.90, 1.13) | 0.91 | 0.95 (0.84, 1.09) | 0.47 |
| Normal weight (BMI <25 kg/m2) | 0.92 (0.71, 1.19) | 0.50 | 0.91 (0.69, 1.20) | 0.49 |
| Overweight/obese (BMI ≥25 kg/m2) | 0.97 (0.88, 1.07) | 0.49 | 0.97 (0.85, 1.12) | 0.70 |

BMI, body mass index; PR, prevalence ratio

1, Values represent prevalence ratios and 95% CI.

2, Results are based on n=4843 due to exclusion of underweight individuals.

3, Full cohort (n=4908 for non-stratified analyses) including energy misreporters

4, Plausible reporters (n=3081 for non-stratified analyses) excluding energy misreporters

5, Poisson regression was used to test for significant differences between tertiles of dietary pattern. Analyses were adjusted for age, smoking, physical activity, level of education, urban or rural location, dieting or atypical dietary intake on day of reporting and female life stage (women only). Hypertension outcomes were additionally adjusted for BMI. Covariates were excluded if they were included in the outcome (i.e. stratification by sex was not adjusted for sex).

**Supplementary Table 2** Factor loadings for obesity and hypertension dietary patterns for the full sample (n=4908) as well as a random split sample (n=2486)

|  |  |  |
| --- | --- | --- |
| Food groups1 | Factor loading | |
| Full sample | Split sample |
| Obesity-DP1 |  |  |
| Apples and pears | 0.30 | 0.28 |
| Carrots | 0.24 | 0.26 |
| Low fat milk | 0.22 | 0.22 |
| Tropical fruit | 0.22 | 0.19 |
| Brassica vegetables | 0.20 | 0.19 |
| Non-wholegrain bread | -0.29 | -0.31 |
| Fruit drinks | -0.20 | -0.22 |
| Beer and cider | -0.20 | -0.21 |
| Processed meat | -0.18 | -0.18 |
| Snacks | -0.17 | -0.17 |
| Obesity-DP2 |  |  |
| Fruit drinks | 0.43 | 0.42 |
| Sugar rich foods | 0.44 | 0.44 |
| Chocolate | 0.24 | 0.25 |
| Cream | 0.21 | 0.18 |
| Full fat milk | 0.21 | 0.22 |
| Non-wholegrain cereals | -0.19 | -0.18 |
| Wine | -0.21 | -0.20 |
| Brassica vegetables | -0.17 | -0.18 |
| Mixed vegetables | -0.16 | -0.17 |
| Wholegrain bread | -0.16 | -0.19 |
| Hypertension-DP1 |  |  |
| Non-wholegrain bread | 0.30 | 0.30 |
| Processed meat | 0.28 | 0.27 |
| Fruit drink | 0.26 | 0.26 |
| Savoury pies | 0.20 | 0.20 |
| Beer and cider | 0.15 | 0.15 |
| Apples and pears | -0.25 | -0.24 |
| Wholegrain cereal | -0.24 | -0.23 |
| Carrots | -0.22 | -0.22 |
| Nuts and seeds | -0.20 | -0.21 |
| Brassica vegetables | -0.19 | -0.19 |
| Hypertension-DP2 |  |  |
| Full fat milk | 0.39 | 0.40 |
| Chocolate | 0.30 | 0.27 |
| Cream | 0.30 | 0.26 |
| Starchy vegetables | 0.30 | 0.30 |
| Saturated fat rich foods | 0.24 | 0.28 |
| Unsaturated fat rich foods | -0.25 | -0.26 |
| Non-wholegrain bread | -0.24 | -0.23 |
| Fried food | -0.19 | -0.18 |
| Fish | -0.19 | -0.15 |
| Fruit drinks | -0.18 | -0.16 |

DP, Dietary Pattern

1, Food groups represent the top five highest loading food groups with direct and inverse associations

**Supplementary Table 3** Comparison of obesity and hypertension prevalence ratio across sex-specific tertiles (T) of dietary pattern between days of 24-hour dietary recall

|  |  |  |
| --- | --- | --- |
| Characteristic | Prevalence ratio | |
| PR (95% CI) | *P* for trend5 |
| **Overweight and obesity2** |  |  |
| Obesity-DP1 |  |  |
| Day 1 | 0.92 (0.88, 0.96) | <0.001 |
| Day 2 | 0.97 (0.94, 1.01) | 0.18 |
| Mean of day 1 and day 2 | 0.94 (0.90, 0.98) | **0.003** |
| Usual intake | 0.93 (0.89, 0.97) | **0.002** |
| Obesity-DP2 |  |  |
| Day 1 | 1.03 (1.00, 1.07) | 0.08 |
| Day 2 | 1.02 (0.98, 1.07) | 0.35 |
| Mean of day 1 and day 2 | 1.04 (1.00, 1.09) | **0.035** |
| Usual intake | 1.06 (1.02, 1.10) | **0.005** |
| **Central adiposity** |  |  |
| Obesity-DP1 |  |  |
| Day 1 | 0.92 (0.88, 0.97) | **0.001** |
| Day 2 | 0.95 (0.92, 0.99) | **0.007** |
| Mean of day 1 and day 2 | 0.93 (0.89, 0.96) | **<0.001** |
| Usual intake | 0.91 (0.87, 0.95) | **<0.001** |
| Obesity-DP2 |  |  |
| Day 1 | 1.03 (1.00, 1.07) | 0.14 |
| Day 2 | 1.01 (0.97, 1.05) | 0.52 |
| Mean of day 1 and day 2 | 1.04 (1.00, 1.08) | **0.063** |
| Usual intake | 1.05 (1.01, 1.09) | **0.011** |
| **Hypertension** |  |  |
| Hypertension-DP1 |  |  |
| Day 1 | 1.06 (0.96, 1.17) | 0.23 |
| Day 2 | 1.14 (1.04, 1.24) | **0.007** |
| Mean of day 1 and day 2 | 1.09 (1.00, 1.19) | **0.055** |
| Usual intake | 1.10 (0.99, 1.21) | 0.067 |
| Hypertension-DP2 |  |  |
| Day 1 | 0.96 (0.88, 1.04) | 0.31 |
| Day 2 | 0.96 (0.87, 1.06) | 0.43 |
| Mean of day 1 and day 2 | 0.95 (0.87, 1.05) | 0.31 |
| Usual intake | 0.94 (0.86, 1.02) | 0.14 |

BMI, body mass index; PR, prevalence ratio

1, Values represent prevalence ratios and 95% CI.

5, Poisson regression was used to test for significant differences between tertiles of dietary pattern. Analyses were adjusted for age, smoking, physical activity, level of education, urban or rural location, dieting or atypical dietary intake on day of reporting and female life stage (women only). Hypertension outcomes were additionally adjusted for BMI.