

consumption have been developed for middle-aged men. These were mainly delivered in healthcare settings. Disadvantaged young men seldom attend healthcare. A tailored brief intervention delivered by text message provides a low cost method for accessing this hard to reach group.

Methods Focus groups were conducted with disadvantaged young men to explore the social context of drinking and opportunities for intervention. Empirical evidence and social cognition theories were used to develop a series of text messages and images to reduce binge drinking. These were tested in three further focus groups, including one with female partners of binge drinkers.

Results The focus groups identified cost and personal experience of alcohol harms as opportunities for intervention. Humour was identified as a useful lever for behaviour change. The focus groups also provided useful quotes for text messages. A series of 37 text messages and images were developed within the framework of the Stages of Change model. They incorporated the principles of motivational interviewing and used components of successful behaviour change strategies. To promote interaction, several messages requested a response.

Conclusion This study has shown it is possible to encapsulate the theoretical approaches and the major components of brief interventions in a series of text messages. Focus groups highlighted levers for change and aided the selection of acceptable messages. This approach could be used with other social groups and other adverse health behaviours.

P2-53 YOUNG ADULT LUNG FUNCTION AND CAROTID INTIMA-MEDIAL THICKNESS

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Introduction Impaired lung function has been associated with an increased risk of cardiovascular disease outcomes, mortality and sub-clinical disease including increased carotid intima-media thickness (cIMT) and carotid plaques. However few population-based studies have investigated the association between lung function and cIMT in young adults.

Objective To investigate the associations of lung spirometric measures with cIMT in healthy young Australian men and women.

Methods Data were collected from a population-based sample of 872 males and 792 non-pregnant females (aged 26–36 years). The associations of adult Forced Vital Capacity (FVC) and Forced Expiratory Volume (FEV₁) with cIMT were investigated using partial correlation.

Results The mean cIMT values (SD) were 0.581 (0.099) and 0.553 (0.080) mm for non-smoking, and 0.575 (0.097) and 0.567 (0.099) mm for smoking males (n=187) and females (n=161) respectively. Significant negative associations of FEV₁ ($\rho=-0.100$ $p=0.012$) and FVC ($\rho=-0.087$ $p=0.029$) with cIMT were observed for non-smoking females after adjustment for age, height, asthma, blood pressure, weight, percentage body fat and fitness. In males there was also a negative association of FVC with cIMT in non-smokers ($\rho=-0.076$ $p=0.058$) and with FEV₁/FVC in smokers ($\rho=-0.196$ $p=0.009$). These associations were independent of C reactive protein and blood lipids. No significant associations were observed for female smokers.

Conclusion In this sample of healthy young men and women airway obstruction was associated with higher cIMT in male smokers. However in non-smoking men and women, FVC was also associated with higher cIMT independently of other cardiovascular disease risk factors.

P2-54 DIET AND RISK OF DIVERTICULAR DISEASE IN THE EUROPEAN PROSPECTIVE INVESTIGATION INTO CANCER AND NUTRITION (EPIC)-OXFORD COHORT, A PROSPECTIVE STUDY OF BRITISH VEGETARIANS AND NON-VEGETARIANS

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Introduction Vegetarians and those consuming a high fibre diet are thought to have a lower risk of diverticular disease but there is little evidence from prospective studies to substantiate these associations. The objective was to examine the associations between vegetarianism and dietary fibre intake with the risk of diverticular disease in the EPIC-Oxford study.

Methods This analysis of the EPIC-Oxford cohort included 47 033 men and women living in England or Scotland of whom 15 459 (33%) were vegetarians. Diverticular disease cases were identified through linkage with hospital records. The RR of diverticular disease by vegetarian status and quintiles of dietary fibre intake was estimated using multivariate Cox proportional hazards regression models.

Results After an average follow-up of 11.6 years, there were 812 incident cases of diverticular disease. Vegetarians had a 30% lower risk (RR=0.70; 95% CI 0.56 to 0.87; $P_{\text{heterogeneity}}=0.001$) of developing diverticular disease compared with non-vegetarians. There was also an inverse association with fibre intake; participants in the highest quintile (>25 g/day) of dietary fibre intake had a 41% lower risk (RR=0.59; 95% CI 0.46 to 0.78; $P_{\text{trend}} < 0.001$) compared to those in the lowest quintile (<14 g/day). After mutual adjustment, both a vegetarian diet ($P_{\text{heterogeneity}}=0.015$) and a higher intake of fibre ($P_{\text{trend}}=0.001$) were significantly associated with a lower risk of diverticular disease.

Conclusion Consuming a vegetarian diet and a high intake of dietary fibre were both associated with a lower risk of diverticular disease.

P2-55 INFLUENCE OF SEXUAL MATURATION ON BODY MASS INDEX IN A LONGITUDINAL STUDY WITH ADOLESCENTS FROM BRAZIL

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Introduction Body mass index (BMI) during adolescence is highly influenced by the pubertal maturation, and early maturation has been associated with overweight, but it is still uncertain if these factors are just a cluster of conditions or whether pubertal maturation influence BMI increments. This study aimed to examine the influence of sexual maturation (SM) on fatness and BMI increments during adolescence among Brazilians aged between 9 and 13 years.

Methods 598 girls and 518 boys were followed from 1-year school period. Maturation timing was self-assessed using the Tanner stage ratings (breast development for girls and pubic hair for boys). Early maturation was determined as the age below the median age within each gender SM group.

Results Girls with early maturation showed a statistically significant greater prevalence of overweight (WHO classification) compared to those without early maturation (23.7% vs 15.4; $p=0.02$) at baseline and similar results were found after 1-year follow-up. On the other hand weight gain during follow-up was not associated to maturation either calculated by stages of sexual maturation, according to Tanner staging or to early maturation, for girls and boys.

Conclusions The results suggest that at baseline and follow-up BMI was highly associated with SM for girls, but BMI increments during follow-up was unrelated to SM for both sexes suggesting a non

causal effect of early age maturation on overweight. Also, there is no explanation for the gender effect.

P2-56 PREVALENCE, AWARENESS, AND CONTROL OF HYPERTENSION AMONG POPULATION AGED OVER 40 YEARS IN MONGOLIA: A BASELINE SURVEY OF MONCOHORT STUDY

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Introduction Hypertension is an important public health problem in Mongolia with a rapidly increasing incidence and deaths noted during the last several years. This study estimates the prevalence and control of hypertension among rural and urban population in Mongolia.

Methods A nationwide cross-sectional study was conducted using stratified multistage sampling. Two blood pressure measurements were obtained using a standardised mercury sphygmomanometer. Information on history of hypertension was obtained using a standard questionnaire. Hypertension was defined as mean systolic and diastolic BPs at >140 mm Hg and >90 mm Hg, and/or self-reported current use of antihypertensive medication, previous diagnosis.

Results A total of 2280 people aged over 40 years were examined (response rate 93.5%). Overall, 63.8% of study population had hypertension. Around 11% were newly diagnosed whereas 55.4% were aware of their hypertension. Prevalence of hypertension significantly increased with age ($p=0.0001$). In addition women were more likely to be aware of their disease and to be on treatment compared to men. People who are aware of their hypertension were significantly more likely to quit smoking compared to those who are newly diagnosed and who are non-hypertensive (22.0%, 6.7% and 11.8%, p). In addition they were more likely to reduce consumption of alcohol (alcohol consumption 56.7%, 65.1% and 64.6%, $p=0.001$) to be on diet (29.2%, 5.3% and 2.6%, $p=0.0001$), and reducing their weights (17.1%, 5.3% and 0%, $p=0.0001$).

Conclusions Hypertension is highly prevalent among population aged over 40 years. Hypertensive people who are aware of their disease were more likely to reduce their risk behaviours and to promote healthy lifestyles.

P2-57 DIABETES, OBESITY AND SOME RISK FACTORS AMONG ADULTS IN MONGOLIA: A NATIONWIDE CROSS-SECTIONAL SURVEY

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Introduction To determine the population-based prevalence of diabetes, impaired fasting glucose (IFG), obesity and non-communicable disease risk factors in Mongolia.

Methods A national sample involving 2280 participants aged ≥ 40 years were examined in a cross-sectional survey conducted in 2009. The WHO diagnostic criteria were used to determine the prevalence of diabetes, IFG and obesity. Serum samples were tested for cholesterol, triglyceride and lipoproteins.

Results Around 55% of the participants were enrolled from capital-Ulaanbaatar city, 30.1% were from rural soums of different geographical regions and the remaining was residing in the province centers (response rate was 93.5%). The diabetes prevalence was 8.0%, and an additional 7.4% had IFG. Prevalence of diabetes in the

city, province centers and rural soums was 9.8%, 6.4% and 5.5% with the significantly highest rate in the city ($p=0.012$). The prevalence of diabetes among population aged over 40 years was 8.3% in men and 7.8% in women. The prevalence of overweight, obesity and central obesity was 37.4%, 26.9% (overall 64.3%) and 63.6%, respectively. Among study population the rates of abnormal triglyceride, cholesterol, and high and low density lipoprotein rates were 14.1%, 16.2%, 28.2%, and 14.0%, respectively. Overall smoking and alcohol consumption rates were 24% and 60.3%, with significant higher use among men compared to women. In general, diet, smoking, alcohol consumption and physical activity were different by age and residence.

Conclusions Mongolia has a rapidly rising prevalence of diabetes and obesity. Central obesity is strongly correlated with adverse health outcomes. In addition unhealthy behaviours are emerging in the adult population.

P2-58 UNHEALTHY LIFESTYLE PATTERNS ASSOCIATED WITH WAIST CIRCUMFERENCE AMONG ADOLESCENTS: A SCHOOL BASED SURVEY

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Objective To analyse patterns of lifestyle is associated with abdominal obesity in Brazilian adolescents (14–18 years old).

Methods This school-based survey was carried out among high school students from Maringá/PR/Brazil, (2007) selected through two-stage random sampling. The sample included 991 (54.5% girls) students. The outcome used was waist circumference (WC). The lifestyle variables used were: physical activity; sedentary behaviour and eating behaviour (number of meals per day; frequency of weekly consumption of soda). The multiple linear regression models were fitted to assess the relationship between WC and lifestyle patterns. Analyses were stratified by sex. Statistical significance was adopted α 5%.

Results The mean waist circumference (cm) for girls and boys was 77.3 and 80.4, respectively, ($p<0.001$). However, girls had higher prevalence of abdominal obesity than boys, 36.3% vs 28.4%, respectively, ($p<0.001$). The boys had a higher level of physical activity than girls, 436 min/wk against 353 min/wk, ($p=0.003$), and the girls have higher sedentary behaviour, 7.1 h/d compared to 5.9 h/d, ($p<0.001$). The daily consumption of soda was positively associated with WC in both sexes, $\beta=0.56$ ($p=0.041$) for girls and $\beta=0.81$ ($p=0.038$) for boys. And negatively associated between number of daily meals and WC, $\beta=-1.52$ ($p<0.001$) for girls and $\beta=-1.07$ ($p=0.011$) for boys.

Conclusion The higher prevalence of abdominal obesity, the lifestyle patterns are different between girls and boys and that eating habits are directly associated with waist circumference independent of sex.

P2-59 ASSOCIATION OF BODY MASS INDEX AND FRUIT JUICE INTAKE IN 27 BRAZILIAN CITIES

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Introduction Fruit juice intake has been associated with weight gain in children and adolescents; however literature regarding this association in adults is scarce.